

JPRS 76401

10 September 1980

China Report

SCIENCE AND TECHNOLOGY

No. 56

FBIS

FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available from Bell & Howell, Old Mansfield Road, Wooster, Ohio 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

10 September 1980

CHINA REPORT
SCIENCE AND TECHNOLOGY
No. 56

CONTENTS

NATIONAL DEVELOPMENTS

Technical Advisors Aid Less-Developed Regions (XINHUA, 23 Aug 80)	1
--	---

LIFE SCIENCES

Barefoot Doctors Want To Be Integral Part of National Health Services (ZHEJIANG RIBAO, 14 Jul 80)	2
---	---

Briefs

New Drug	8
Traditional Medicine Training	8
Beijing Lung Transplant Experiments	8
Hubei Barefoot Doctors' Examination	9

PUBLICATIONS

Tables of Contents of 'DONGWU FENLEI XUEBAO' No 4, 1979, Nos 1-3, 1980 (DONGWU FENLEI XUEBAO, Nov 79)	10
---	----

ABSTRACTS

ELECTRONICS

WUXIANDIAN [RADIO], No 7, 25 Jul 80	21
---	----

ENVIRONMENTAL PROTECTION

HUANJING BAOHU [ENVIRONMENTAL PROTECTION], No 3, 1980	23
---	----

GEOCHEMISTRY

DIQIUHUAXUE [GEOCHIMICA], No 1, Mar 80 28

LASERS

JIGUANG [LASER JOURNAL], No 4, Apr 80 38

NATURAL SCIENCES

ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY,
NATURAL SCIENCE EDITION], No 1, Feb 80 48

SEISMOLOGY

DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA], No 1, Feb 80 57

NATIONAL DEVELOPMENTS

TECHNICAL ADVISORS AID LESS-DEVELOPED REGIONS

OW230730 Beijing XINHUA in English 0712 GMT 23 Aug 80

[Text] Wuhan, August 23 (XINHUA)--Technicians and skilled workers from Shanghai, China's most developed industrial city, are advising the country's less-developed areas as part of a drive to raise the level of technology nationwide.

Twenty four provinces and cities over the country now have technical advisors from Shanghai. Hubei Province alone has 900. These advisors enjoy better pay and conditions than ordinary workers.

Xianning Prefecture in Hubei Province, Central China, is one of the areas benefiting from this program. The prefecture has received help from 205 engineers, technicians and skilled workers from Shanghai, most retired and in their 60's, in 63 factories since last year. With their help, the quality, quantity and variety of the products made in these factories have greatly improved.

Located south of the Yangtze River, Xianning has rich metal and nonmetal deposits including copper, antimony, manganese, coal and quartz. It also abounds in water and other resources.

But for a long time, these resources were not efficiently utilized and the pace of industrial development was slow.

"There are many reasons," said Cao Ye, vice-secretary of the Prefectural Party Committee in charge of industry. "In developing industry here, the major problem lies in the backwardness of technology and management."

The prefecture selected 429 young workers as apprentices to the Shanghai advisors. In addition, 6,000 persons have attended lectures and classes held by the specialists.

At one farm tool plant in the prefecture, four Shanghai advisors raised 105 proposals which led to the production of first-rate diesel engines and reduced the cost of each engine from 717 yuan to 650 yuan. With their help, weaving and towel factories and an electrical appliances plant improved technology and management also.

CSO: 4020

LIFE SCIENCES

BAREFOOT DOCTORS WANT TO BE INTEGRAL PART OF NATIONAL HEALTH SERVICES

Hangzhou ZHEJIANG RIBAO in Chinese 14 Jul 80 p 3

[Article: "Maintain the Cooperative Approach to Medicine, Institute Measures in Line With Local Conditions"]

[Text] Editor's Note: About 33 million of our province's 37 million people live in rural villages. The birth, aging, sickness, and death problems of these 33 million people are a matter of importance. Given the present economic circumstances of our country, reliance on the masses to maintain a cooperative medical service system is a workable method for gradually solving the problem of a shortage of medical services and medicines in rural villages, and for satisfying the medical and health needs of the masses. The cooperative medical services approach must be maintained. Of importance right now is that the leadership concerned wants to undertake diligent investigation and study of new problems that have appeared under new circumstances in collective medical services work. They want to focus on these new problems in the new situation, and institute measures that are adapted to local circumstances in order to consolidate and develop the system of collective medical services. To relinquish leadership of collective medical services is wrong. It is hoped that more units will look into the problems in collective medical services in the same way that the Provincial Health Bureau's Fact Finding Unit has done and diligently handle this matter properly.

A cooperative medical system has been in operation in the rural villages of our province for many years. Experience has demonstrated that this kind of medical system both accommodates commune members in providing them medical services and also reduces the burden of medical expenses for the masses of commune members. It has direct benefits for the development of agricultural production, and for increases in the incomes of commune members. In 1977, 87 percent of the production brigades

throughout the province operated cooperative medical services, and barefoot doctors numbered 82,000. During the past 2 years, however, a trend toward decline in cooperative medical services and the number of barefoot doctors has taken place in quite a few prefectures. Why has this happened? Recently, we undertook some fact finding in nine counties in six different prefectures, discovering that the main reasons are a lack of unity in understanding about the strengthening of the development of cooperative medical services, and that measures have been insufficiently instituted.

The Various Forms of Cooperative Medical Services in Our Province

Cooperative medical services in our province have roughly the following forms at the present time:

1. Medical treatment centers. In these, funding is generally done through a joint fund raised from the collective and from commune members, with an extremely small number of them being provided funds from public welfare funds. Proportional payment is made in reimbursement of medical expenses (though in a minority all expenses are paid). Work points for the barefoot doctors at these centers is the responsibility of the brigades. These centers are operated either by brigades or jointly by the commune and its brigades.
2. In this system, the brigade makes a one-time withdrawal of welfare funds for the funding of purchases of some pharmaceuticals and medical appliances. Work points for the barefoot doctors are the responsibility of the brigades. Commune members can get medical attention without payment of registration fees or inoculation fees, and fees are collected for the sale of pharmaceuticals at the retail rate, with the profit derived being used to buy more pharmaceuticals or medical appliances.

The above two kinds constitute the majority of medical treatment services. The first kind is found principally in communes and brigades of better economic conditions. The rural villages in Jiaying Prefecture, for example, are mostly of this kind. The second kind is found principally in communes and brigades where economic conditions are poorer. In addition, some places have adopted a system whereby the brigades provide the funds to operate health clinics. In these, the brigades are responsible for providing work points for the barefoot doctors, but commune members pay for medical attention received with the receipts reverting to the brigade. There are also individual enterprise type medical services. In these, either barefoot doctors or medical personnel with time to spare provide the funds to run a clinic with all receipts going to themselves, but turning over to the brigades payment of sideline occupation funds.

At the present time no fundamental solution has been found for the lack of medical services and medicines in the rural villages of our province,

particularly in some communes and brigades in mountain areas. A solution to the problem of medical treatment and medicine for cadres and commune members in these communes and brigades is extremely pressing. Inasmuch as collective medical services are collective welfare endeavors built by the collective strength of the masses of commune members on the basis of voluntary mutual support and suited to the economic level of the rural villages, it possesses great advantages. Moreover, the constitution of our country and the work regulations of the people's communes clearly stipulate active support to cooperative medical services endeavors. This is very advantageous for the solution of the problem of medical treatment and medicine for commune members. Consequently, cadres and commune members welcome the institution of a cooperative medical services system. The major problem of the moment is that under new circumstances there should be attention given to diligent study of and solution to the new problems in the new circumstances that have occurred in the development of collective medical services.

Continue to Propagandize the Superiority of Cooperative Medical Services

Formerly, when we were promoting the operation of medical services by communes and brigades, objective conditions were neglected in a lopsided pursuit of numbers and the solution of all problems with "a single stroke." As a result some cooperative medical treatment centers went into operation only to fail or even failing several times after several attempts, thus dampening the enthusiasm of cadres and commune members for operating cooperative medical services. For this reason, in the operation of cooperative medical services, it is necessary to suit methods to local conditions, to seek truth in facts, and not force uniformity, permitting various kinds to co-exist. It is also necessary, however, to propagandize continuously the superiority of cooperative medical services and adhere to the approach of operating cooperative medical services, gradually increasing development from the existing foundation. This is the only way to meet the daily increasing needs of the masses for the prevention and treatment of illness. In fact, it was because attitudes toward this problem were inadequately clarified during a previous stage that cadres and commune members in some places were adversely affected, giving rise to doubts and equivocation. Now, emphasis on maintenance of the cooperative approach to medical services is necessary. Furthermore, as the party's economic policies for rural villages are fully carried out, some communes and brigades that suffered from poor economic conditions heretofore will now be able gradually to walk the path of prosperity, and the development of stable cooperative medical services is entirely possible. This is also what the masses want. Units concerned should intensify propaganda and educational work in this regard.

Take Concrete Measures To Stabilize and Increase the Ranks of the Barefoot Doctors

Barefoot doctors are the linchpin in the operation of cooperative medical services. The reason for the ups and downs in cooperative medical services during the past 2 years is very much related to the instability in the ranks of the barefoot doctors and their low level of professional competence. This has resulted in brigades being able to replace barefoot doctors at will, and this has been an element in the instability of their ranks. In order to change this state of affairs, the broad masses of barefoot doctors have urgently requested health authorities to make them an integral part of our nation's medical and health ranks. Therefore, it is necessary to take steps to stabilize and improve the ranks of the barefoot doctors. Brigades must take responsibility for the selection and recommendation of barefoot doctors, and once they have been approved by communes, prefecture and commune hospitals will give them preliminary training. Following 2 to 3 years of practical work, they will again be tested by county health authorities and issued conditional certificates, formally becoming barefoot doctors. Formal barefoot doctors will be under the direction of county health authorities, and brigades will generally have no authority to transfer or replace them. Supplementary economic measures must also be taken to make arrangements for remuneration to barefoot doctors. It is understood that remuneration to barefoot doctors now takes roughly the following several forms. 1) Setting of work point remuneration on the basis of equal work done in the local brigade; 2) for use of spare time to give medical attention, provision of an additional sum annually. For attendance at meetings elsewhere or for the purchase of medicines, payment of recorded actual out of pocket expenses; 3) payment of fixed work points or fixed salaries the same as for personnel in brigade operated enterprises. Overall, income for most barefoot doctors will be at the medium level of those doing similar work. In rural villages where a continuous output system of responsibility has been instituted or where encouragement is given to the policy of developing household sideline occupations, inasmuch as duties of the barefoot doctors will generally be heavier and working hours longer, since they will not be able to obtain rewards for excess production or higher work points like other commune members, and since they will not have time to engage in household sideline occupations, their actual incomes will be relatively less than for commune members who engage in agricultural labor. If it is possible to adopt concrete policy measures to assure that the income for the labor of barefoot doctors is not lower than that for the same work, this problem will not be difficult to solve. This year Haiyan County's health bureau tried out a reward system for barefoot doctors. They divided the responsibilities for which barefoot doctors are responsible into preventive medicine, treatment, use of Chinese herbal remedies, and fiscal management. For each category, criteria were set with marks given for how well the criteria were met. Then, on the basis of the number of points, a portion of receipts from the medical station's registration fees,

inoculation fees, and supplementary payments for preventive work were given to the barefoot doctors as rewards. Additionally, they withdrew a little from the health activities fund to give as rewards to advanced barefoot doctors each quarter. The usual range of payment of rewards was 25 percent with each person averaging 6 yuan each time. Though not perfect, and though in effect for only a short period of time, this method has increased the enthusiasm of the barefoot doctors. This is certain. In short, in managing barefoot doctors and solving their reimbursement problem, it is necessary to study the formulation of concrete and effective policies.

Once the stabilization of the ranks of the barefoot doctors has been achieved, it is necessary to improve upon their training. On the basis of past experience, the major task of county level training bases in the future should be to get the barefoot doctors to the level of a secondary technical school. It is also necessary to adopt a program of selective training and selective improvement so that some barefoot doctors attain this level first. This method both conserves on training expenses and can also rapidly build up a backbone corps in the ranks of the barefoot doctors. Additionally, institution of a system of general advancement for barefoot doctors entails distinctions in the amount of remuneration given to barefoot doctors of different levels of competence in order to encourage barefoot doctors to strive to get ahead. Furthermore, barefoot doctors who have gone through formal testing of qualifications should organize and establish a barefoot doctors association for academic and technical exchanges.

Do a Good Job of Handling the Relationship Between Commune Hospitals and Cooperative Medical Services

The growth and consolidation of cooperative medical services is directly related to commune hospitals. However, once the commune hospitals have strengthened economic management, some conflicts may arise in their dealings thereafter with cooperative medical services. Some commune hospitals have noted that the better run the cooperative medical services, the less the income of commune hospitals. A commune hospital in Xiaoshan County used to have about 200 outpatient cases a day but once each brigade began to operate cooperative medical stations, the number fell by half. This is a real problem, which if not anticipated, can cause trouble in the economic management of commune hospitals or impair the consolidated development of cooperative medical services.

Still another problem is that of supply of medicines to cooperative medical service stations. Two methods are currently in operation in our province. One is the direct acquisition from pharmaceutical companies of medicines by cooperative medical service stations. This method is not very convenient for distantly located mountain regions, and it increases the burden of transportation expenses. The second is for the commune hospital to get the medicines from the pharmaceutical companies.

The pharmaceutical companies give the hospitals a small price break, and the commune hospitals sell the pharmaceuticals to the medical service stations at the wholesale price. The advantage in this is that the medical service stations can get their medicines easily, and no matter how little funds they have at their disposal, they can get medicines from the commune hospital. If they have more funds, they get more medicine, and if they have less funds, they get less medicine, even being able to get 1 or 2 yuan worth of medicine. But many commune hospitals report that they themselves gain few advantages from this method. These are new problems that have arisen following strengthening of economic management, which await study of reasonable methods of solution.

9432

CSO: 4008

LIFE SCIENCES

BRIEFS

NEW DRUG--Lanzhou, August 16 (XINHUA)--Chinese hospitals are now using a new drug for injection to increase the white blood cell count of patients undergoing radiotherapy and suffering from reduction of this blood ingredient, one of the body's defence mechanism against infection. These hospitals report an effective rate of about 80 per cent. The drug was worked out by the Workers' Hospital of the Jiuquan Iron and Steel Company of Gansu Province in close cooperation with the Institute of Radiation Research of the Chinese Academy of Medical Sciences. It is composed of oxymatrine and sophocarpine n-oxide extracted from *sophora flavescens* ait, a wild plant abundant in Gansu Province and other places. [Text] [Beijing XINHUA in English 1233 GMT 16 Aug 80 OW]

TRADITIONAL MEDICINE TRAINING--Beijing, August 14 (XINHUA)--Sichuan Province has trained more than 7,000 doctors of traditional Chinese medicine over the past five years, bringing the total up to 40 thousand, which accounts for one-sixth of China's total. Six schools of traditional Chinese medicine have been added and 12 medical schools have opened courses of traditional Chinese medicine since 1973. Luzhou Medical College opened a department of traditional Chinese medicine in 1977. The province used to have only one institute of traditional Chinese medicine and two institutes for advanced courses. In central China's Henan Province, more than 100 veteran doctors of traditional Chinese medicine are training 500 young people under a scheme organised by provincial authorities. They will take a five-year course, two and a half years of basic training in traditional and modern medicine and the remainder under the guidance of the veteran doctors. The evening college of the Shanghai Institute of Traditional Chinese Medicine will re-open this autumn after a lapse of 15 years. [Text] [OW140710 Beijing XINHUA in English 0702 GMT 14 Aug 80]

BEIJING LUNG TRANSPLANT EXPERIMENTS--Beijing, August 9 (XINHUA)--A dog survived 390 days at the Beijing Institute of Tubercular Diseases after a transplant operation using the left lung of another dog, according to the BEIJING DAILY. The dog died of pneumothorax of the right lung on May 31, 1980. At present, a dog which also received a lung transplant 124 days ago is still living. Dr. Xin Yuling, noted Chinese thoracic surgeon who is now deputy director of the institute, began lung transplant

experiments on dogs in 1958. At that time, dogs with transplanted lungs survived for several days. In 1978, an experimental group lived more than ten days, while in 1979 they averaged more than 50 days. The longer lifespan was due to improved techniques in methods of joining blood vessels and in post-operative treatment. On the basis of extensive animal experiments, Dr. Xin has performed two lung transplant operations on human subjects on January 13 and October 17, 1979. The operations were not successful due to strong antibody reaction and the transplants were removed seven days and 12 days later. [Text] [OW100019 Beijing XINHUA in English 1240 GMT 9 Aug 80]

HUBEI BAREFOOT DOCTORS' EXAMINATION--Wuhan, August 17 (XINHUA)--Licenses for medical practice have been given to 293 barefoot doctors who recently passed an examination in Xishui County, Hubei Province. The examination was conducted by the county people's government to assess the professional ability of barefoot doctors, who came from among the local peasants and had received different courses of elementary training. Altogether 1,056 people took the examination. Those who passed were approved for future medical practice. Most of them have more than five years experience in this field. Their educational level equals that of graduates of secondary medical schools. Those who failed the examination may not continue practising. They can take another examination after a one-year training course. [Text] [OW170730 Beijing XINHUA in English 0722 GMT 17 Aug 80]

CSO: 4020

PUBLICATIONS

TABLE OF CONTENTS OF 'DONGWU FENLEI XUEBAO' NO 4, 1979, NOS 1-3, 1980

Beijing DONGWU FENLEI XUEBAO [ACTA ZOOTAXONOMICA SINICA] in Chinese No 4, Nov 79; No 1, Jan 80; No 2, Apr 80; No 3, Jul 80

[No 4, Nov 79 inside back cover]

- [Text] Phylogenetic Relationship and Systematic Position of Gyrinocheilus (Gyrinocheilidae, Pisces).....Wu Xianwen [0124 3759 2429], Luo Yunlin [5012 0061 2651] and Lin Renduan [2651 0086 4551], all of the Institute of Hydrobiology, Chinese Academy of Sciences (311)
- A New Genus and Species of Enchytraeidae from Tibet.....Liang Yanling [2733 1750 7881], Institute of Hydrobiology, Chinese Academy of Sciences; Xu Zhifang [6079 2535 5364] and Zhang Dening [1728 1795 1380], both of the Department of Biology, Nanjing University (314)
- Studies on Acanthocephala of Freshwater Fish in Liaoning, China, with Description of a New Species.....Mao Guoliang [3029 0948 5328], Institute of Freshwater Fisheries of Liaoning Province (319)
- On a New Trematode: Ficedularia beijingensis gen. et sp. nov. from the Eye of a Bird in Beijing, China.....Xu Pengru [6079 7720 1172], South China Agricultural College (326)
- Systematic Studies on Amphistomatous Trematodes from China. II. Paramphistomatidae: Paramphistomanae and Gastrothylacinae, With Notes on Some New Species.....Wang Xiyun [3769 3305 0061], Institute of Parasitology, Jiangxi Province (337)
- On a New Trematode Belonging to Genus Acanthoparyphium Dietz, 1909.....Gu Changdong [7357 2490 2767, deceased] and Qiu Zhaozhi [6726 0340 4363], both of the Department of Biology, Nankai University, Tianjin; Li Minmin [2621 2404 2404] and Zhu Hua [4376 5478], both of the Institute of

- Zoology, Chinese Academy of Sciences (341)
- Ten New Species of Digenetic Trematodes of Marine Fish.....
Gu Changdong [7357 2490 2767, deceased], Department of
Biology, Nankai University, Tianjin; Shen Jiwei [3947 4764
0251], Institute of Oceanology, Chinese Academy of Sciences,
Qingdao (353)
- A New Species of Freshwater Razor Clam, *Novaculina chinensis*,
from Jiangsu Province, China.....Liu Yueying [0491 2588 5391]
and Zhang Wenzhen [1728 2429 3791], both of the Institute of
Zoology, Chinese Academy of Sciences (358)
- On a New Slug from China.....Chen Deniu [7115 1795 3662]
and Gao Jiaxiang [7559 1367 4382], both of the Institute of
Zoology, Chinese Academy of Sciences (361)
- New Species of Chinese Lygaeidae (II) Ischnorhynchinae,
Oxycaeninae, Pachygronthinae (Hemipt.-Heteropt.).....
Zheng Leyi [6774 2867 1837], Zou Huangguang [6760 3883 0342]
and Xiao Caiyu [5618 6846 3842, deceased], all of the
Biology Department, Nankai University, Tianjin (369)
- Four New Species of the Genus *Herpetacarus* from China
(Acarina: Trombiculidae).....Yu Zizhong [0151 5261 1813],
Yang Xiaodong [2799 2556 2639] and Cheng Yaling [7115 7161
3781], all of the Control and Research Institute of Epidemic
Diseases of Yunnan (376)
- A New Species of *Dasyphora* R.-D. from Liaoning, China
(Diptera: Muscidae).....Ma Zhongyu [7456 1813 0151],
Sanitary and Epidemiological Station of Liaoning Province (380)
- The Gamasoid Mites on *Typhlomys cinereus chapensis* with
Description of a New Genus and New Species of Laelaptidae.....
Gu Yiming [7357 0110 6900] and Wang Jusheng [3769 5468 3932],
both of the Department of Parasitology, Guiyang Medical College (383)
- On Five New Species of the Genus *Bellardia* R.-D. (Diptera:
Calliphoridae).....Chen Zhizi [7115 0037 2737], Shanghai
Institute of Entomology, Chinese Academy of Sciences (390)
- Descriptions of Six New Species of *Telenomus* (Hymenoptera:
Scelionidae).....Wu Yanru [0702 3601 1172], Chen Tailu
[7115 3141 7627] and Liao Dingxi [1675 1353 3588], all of
the Institute of Zoology, Chinese Academy of Sciences;
He Junhua [0149 0193 5478], Zhejiang University of Agriculture (398)

- On Some New Species and New Records of Fleas from China (Siphonaptera).....Li Guizhen [2621 6311 6297] and Huang Guiping [7806 6311 5493], both of Guiyang Medical College (406)
- A New Species of the Genus Rhyzolaelaps (Acarina: Laelaptidae) Gu Yiming [7357 0110 6900] and Wang Jusheng [3769 5468 3932], both of the Department of Parasitology, Guiyang Medical College (412)
- A New Species of Xenopsylla (Siphonaptera: Pulicidae)..... Yu Xin [0060 1800], Institute of Epidemiology, Xinjiang Uygur Autonomous Region; Wang Dunqing [3769 2415 3237], Fujian Institute of Epidemic Diseases (415)
- A New Species of Ahmaditermes from China (Termitidae: Nasutitermitinae).....Cai Banghua [5591 6721 5478] and Huang Fusheng [7806 1788 3932], both of the Institute of Zoology, Chinese Academy of Sciences (418)
- Notes of Fish of the Genus Mystacoleucus from Southern Yunnan, China, with Description of a New Species..... Huang Shunyou [7806 7311 0645], Kunming Institute of Zoology, Chinese Academy of Sciences (421)
- A New Snake of the Genus Trimeresurus from Sichuan, China..... Zhao Ermi [6392 1422 1348], Chengdu Institute of Biology, Chinese Academy of Sciences (424)
- Scientific Notes
- On Species Definition.....Chen Shixiang [7115 0113 7534], Institute of Zoology, Chinese Academy of Sciences (425)
- New Records of Chinese Lymnaeidae.....Liu Yueying [0491 2588 5391], Zhang Wenzhen [1728 2429 3791] and Wang Yaoxian [3769 6460 0341], all of the Institute of Zoology, Chinese Academy of Sciences (311)
- Notes on the Mosquitoes New to China, 4.....Lu Baolin [7120 1405 7792] and Li Beisi [2621 5563 1835] (320)
- New Records of Chinese Chiggers from Liaoning.....Sun Duo [1327 6995], Benxi Municipal Public Health and Epidemiology Station, Liaoning Province (355)
- New Records of Chinese Paradoxopsyllus (Siphonaptera: Leptopsyllidae).....Lan Xiaohui [5695 2556 6540], Xizang Autonomous Region Public Health and Epidemiology Station (361)

- Preliminary Observations on the Habits of Toxorhynchites (T.) gravelyi (Edwards, 1921),.....Shu Guanghai [5289 0342 3189], Yibin Regional Public Health and Epidemiology Station, Sichuan Province; Zhou Shixuan [0719 0013 6513], Changning County Public Health and Epidemiology Station (384)
- [Note: All articles in journal, except those in the "Scientific Notes" Section, are accompanied by English abstracts.]
- [No 1, Jan 80 inside back cover]
- [Text] A Review of the Geological History of Insects..... Tan Juanjie [6223 1227 2638], Institute of Zoology, Chinese Academy of Sciences (13)
- The Differentiation of Cibarial Armature of Culex in China..... Chen Hanbin [7115 3352 1755], Guiyang Medical College (21)
- On the Nematodes of Mammals from the Dehong Area, Yunnan, China.....Yin Wenzhen [1438 2429 4176], Institute of Zoology, Chinese Academy of Sciences (28)
- Description of Two New Species of Macrobrachium (Decapoda Caridea) from Fujian, China.....Liang Xiangqiu [2733 6272 4428] and Yan Shengliang [0917 3932 5328], both of Shanghai Fisheries College (33)
- Two New Species of Hermit Crabs (Crustacea, Anomura) from China.....Wang Fuzhen [3769 1788 2182] and Dong Yumao [5516 5124 5399], both of the Department of Biology, Hangzhou University (37)
- One New Species of Latreillopsis from the South China Sea..... Dai Aiyun [2071 1947 0061], Institute of Zoology, Chinese Academy of Sciences; Chen Huilian [7115 1920 5571], Institute of Oceanology, Chinese Academy of Sciences (40)
- New Species and New Records of Tetranychid Mites from China. I. (Acarina: Tetranychidae).....Ma Enpei [7456 1869 3099], Department of Biology, Jiangxi University; Yuan Yilan [5913 5669 5695], Shanghai Natural History Museum (44)
- On Two New Species of Gamasoid Mites Parasitizing Petaurista elegans, with Description of a New Species of the Genus Haemolaelaps (Acarina: Laelaptidae).....Gu Yiming [7357 0110 6900] and Wang Jusheng [3769 5468 3932], both of the Department of Parasitology, Guiyang Medical College (49)
- Two New Laelaptid Mites Associated with Bamboo Rat..... Wang Dunqing [3769 2415 3237], Liao Haorong [1675 3493 3310]

- and Lin Zuhua [2651 4371 5478], all of Fujian Research
Institute of Epidemic Diseases (54)
- A New Species of the Genus Steatonyssus Kolenati (Acarina:
Macronyssidae).....Gu Yiming [7357 0110 6900] and Wang
Jusheng [3769 5468 3932], both of the Department of
Parasitology, Guiyang Medical College (58)
- Notes on the Genus Steatonyssus in China (Acarina: Macro-
nyssidae).....Deng Guofan [6772 0948 5672], Institute of
Zoology, Chinese Academy of Sciences (62)
- Granulidae--A New Family of Homoptera from the Middle
Triassic of Tongchuan, Shanxi Province.....Hong Youchong
[3163 0645 1504], North China Institute of Geological Sciences (68)
- Sucking Lice of the Genus Hoplopleura from China (Anoplura:
Hoplopleuridae).....Deng Guofan [6772 0948 5672], Institute
of Zoology, Chinese Academy of Sciences (74)
- A New Genus and Two New Species of Rutelidae from South
China (Coleoptera).....Lin Ping [2651 1627], Guangdong
Institute of Entomology (77)
- A Study on Chinese Telenomus (Aholcus) (Hymenoptera:
Scelionidae).....Wu Yanru [0702 3601 1172] and Chen Tailu
[7115 3141 7627], both of the Institute of Zoology,
Chinese Academy of Sciences (83)
- Culicoides of Yunnan Province, China (Diptera: Cerato-
pogonidae).....Li Tiesheng [2621 6993 3932], Institute
of Zoology, Chinese Academy of Sciences (88)
- The Homalopterid Fish from Guangdong Province, China.....
Zheng Ciying [6774 1964 5391], Department of Biology,
Jinan University; Chen Yiyu [7115 1355 3842], Institute of
Hydrobiology, Chinese Academy of Sciences (99)
- Preliminary Studies on Systemic Relationships of the Species
of Mergus.....Tan Yaokuang [6223 5069 0562] and Zheng
Zuoxin [6774 0155 2450], both of the Institute of Zoology,
Chinese Academy of Sciences (105)
- On the Taxonomic Status of Pitymys leucurus Blyth.....
Zheng Changlin [6774 2490 3829], Institute of Northwest
Plateau Biology, Chinese Academy of Sciences; Wang Song
[3076 2646], Institute of Zoology, Chinese Academy of
Sciences (111)

Scientific Notes

New Records of Some Thrips from China (Thysanoptera: Thripidae).....Zhang Weiqiu [1728 4850 3808], Department of Plant Protection, South China Agricultural College (78)

New Records of Termites from China.....Huang Fusheng [7806 1788 3932], Institute of Zoology, Chinese Academy of Sciences (29)

[Note: All articles in journal, except those in the section "Scientific Notes," are accompanied by English abstracts.]

[No 2, Apr 80 inside back cover]

[Text] On a New Dicrocoeliid Trematode from the Harlequin Bat in China.....Li Minmin [2621 2404 2404], Institute of Zoology, Chinese Academy of Sciences; Gu Changdong [7357 2490 2767, deceased], Department of Biology, Nankai University, Tianjin (115)

Notes on the Acanthocephala from Fujian (II).....Wang Puqin [3076 3302 2953], Parasitological Research Laboratory, Fujian Normal University (122)

A New Genus of Lernaeidae (Parasitic Copepods) and Its Relation to Affined Genera.....Kuang Puren [0562 3302 0088], Kunming Institute of Zoology, Chinese Academy of Sciences (128)

New Species and New Records of Family Finnotheridae from Hainan Island.....Dai Aiyun [2071 1947 0061], Feng Zhongqi [7458 6988 3825], Song Yuzhi [1345 3768 2655] and Chen Guoxiao [7115 0948 1321], all of the Institute of Zoology, Chinese Academy of Sciences (140)

Two New Species of Haemaphysalis from China (Acarina: Ixodidae).....Deng Guofan [6772 0948 5672], Institute of Zoology, Chinese Academy of Sciences (148)

Two New Species of the Genus Ascoschoengastia from Yunnan, China (Acarina: Trombiculidae).....Yu Zizhong [0151 5261 1807], Yang Guangrong [2799 0342 2837] and Chen Ruhua [7115 1172 5478], all of the Control and Research Institute of Epidemic Diseases of Yunnan Province (153)

Two New Species of Chigger Mites from Anhui Province.....Chen Xingbao [7115 5281 0202], Fan Peifang [2868 1014 2455] and Chen Daixia [7115 7818 7209], all of the Department of

- Parasitology, Bengbu Medical College (158)
- On the Permian Diaphanopterodea and Homoptera of Nei Monggol, China.....Tan Juanjie [6223 1227 2638], Institute of Zoology, Chinese Academy of Sciences (163)
- Two New Genera and Five New Species of Delphacidae (Homoptera: Fulgoroidea).....Huang Qilin [7806 0366 2651, deceased], Ding Jinhua [0002 6930 5478] and Tian Lixin [3944 4539 2450], all of Nanjing Agricultural College; Ge Zhonglin [5514 6988 7792], Anhui Agricultural College (171)
- A New Species of the Genus Eclipophleps Tarb. (Orthoptera: Acrididae).....Liu Jupeng [0491 5281 7720], Institute of Zoology, Chinese Academy of Sciences (174)
- New Species of Mezirinae from China (Hemiptera-Heteroptera: Aradidae).....Liu Shengli [0491 0524 0448], Tianjin Museum of Natural History (183)
- New Species of Haematopota from China (Diptera: Tabanidae)..... Xu Rongman [6079 2837 3341], Institute of Microbiology and Epidemiology, Academy of Military Medical Sciences, PLA (190)
- New Species of Genus Popillia from China (Coleoptera: Rutelidae).....Lin Ping [2651 1627], Guangdong Institute of Entomology (196)
- Systematic Studies on the Fish of the Family Homalopteridae of China. III. Phyletic Studies of the Homalopterid Fish..... Chen Yiyu [7115 1355 3842], Institute of Hydrobiology, Chinese Academy of Sciences (211)
- A New Subspecies of Pallas' Pika from Nei Monggol, China..... Ma Yong [7456 0516], Lin Yonglie [2651 3057 3525] and Li Sihua [2621 1835 5478], all of the Institute of Zoology, Chinese Academy of Sciences (214)
- Scientific Notes
- New Records of Chinese Land Snails.....Chen Deniu [7115 1795 3662] and Gao Jiaxiang [7559 1367 4382], both of the Institute of Zoology, Chinese Academy of Sciences (215)
- Two New Records of Cryptotermes from Hainan Island (Isoptera: Kalotermitidae).....You Qiwei [1429 0366 0251, deceased] and Ping Zhengming [1627 2973 2494], both of South China College of Tropical Crops (216)

- New Record of Chinese Bird from Xinjiang.....Chen Fuguan [7115 2591 1351] and Min Zhilan [7036 5347 5695], both of the Department of Biology, Northwest University; Wang Tingzheng [3769 1694 2973] and Fang Rongsheng [2455 2837 4141], both of the Department of Biology, Shaanxi Teachers' University; Luo Shiyu [5012 2514 2589], Shaanxi Provincial Institute of Zoology (218)
- New Records of Chinese Birds from Yunnan.....Kuang Bangyu [0562 6721 6735] and Yang Dehua [2799 1795 5478], both of Kunming Institute of Zoology, Chinese Academy of Sciences (219)
- Notes on the Sarcophagidae New to China.....Zhang Xuezhong [1728 1331 1813], Institute of Zoology, Chinese Academy of Sciences (143)
- New Records of Sarcophagidae from China.....Xue Wanqi [5641 8001 3823], Benxi Municipal Public Health and Epidemiology Station, Liaoning Province (191)
- New Records of Calliphoridae from Liaoning Province, China Xue Wanqi [5641 8001 3823], Benxi Municipal Public Health and Epidemiology Station, Liaoning Province (172)
- [Note: All articles in journal, except those in "Scientific Notes" Section, are accompanied by English abstracts.]
- [No 3, Jul 80 inside back cover - back cover]
- [Text] A New Subspecies of Freshwater Medusa from Henan..... He Zhenwu [0149 2182 2976], Department of Biology, Xinxiang Normal College, Henan (223)
- On Avian Trematodes of Family Psilostomidae from Jilin Province.....Bai Gongmao [4101 0501 2021], Liu Zhaoming [0491 0340 6900] and Chen Minsheng [7115 2404 3932], all of the Department of Parasitology, Bethune Medical College (230)
- On Some Parasitic Helminths of Yellow Weasel from China..... Zhang Naixin [1728 0035 2450] and Yin Wenzhen [1438 2429 4176], both of the Institute of Zoology, Chinese Academy of Sciences (234)
- Studies on Microphallid Trematodes from China. V. Genus Gynaecotyla, with Descriptions of Two New Species..... Ke Xiaolin [2688 1420 7792], Department of Parasitology, Zhongshan Medical College, Guangzhou (238)
- A New Species of Monogenetic Trematode of the Genus Heteronchocleidus from Freshwater Fish.....Zhang Jianying [1728

- 0494 3391] and Ji Guoliang [4764 0948 5328], both of the Ichthyopathology Teaching and Research Group, Department of Fisheries, Central China Agricultural College, Wuhan (241)
- Studies on Some New Nematodes of the Suborder Oxyurata from Fujian, China.....Wang Puqin [3076 3302 2953], Parasitological Research Laboratory, Fujian Normal University (251)
- On a New Species and a New Subspecies of Land Snails from Sichuan Province, China.....Chen Deniu [7115 1795 3662] and Gao Jiaxiang [7559 1367 4382], both of the Institute of Zoology, Chinese Academy of Sciences (255)
- A New Species of Sinopotamon (Crustacea, Decapoda) from Hubei Province, China.....Chen Guoxiao [7115 0948 1321], Institute of Zoology, Chinese Academy of Sciences (257)
- Three New Species of Chigger Mites from China (Acarina: Trombiculidae).....Yu Zizhong [0151 5261 1813], Yang Guangrong [2799 0342 2837] and Tu Yufa [3205 5148 4099], all of the Control and Research Institute of Epidemic Diseases of Yunnan Province (263)
- Notes on Chinese Tachinidae: Genus Linnaemya R.-D. (II)..... Zhao Jianming [6392 1696 6900] and Shi Yongshan [0670 3057 0810], both of the Institute of Zoology, Chinese Academy of Sciences (270)
- Descriptions of Three New Species and One New Record of Calyptrate Flies from Sichuan, China (Anthomyiidae, Muscidae and Sarcophagidae).....Li Rong [2621 2837], Department of Parasitology, Sichuan Medical College (277)
- Chinese Piazomias Schoenherr (Coleoptera: Curculionidae)..... Zhao Yangchang [6392 7402 2490], Institute of Zoology, Chinese Academy of Sciences (285)
- New Coccids of the Genus Aulacaspis in China.....Chen Fangjie [7115 2455 3381], Wu Zhiqing [0702 1807 3237] and Su Dakun [5685 1129 2492], all of the Plant Protection Research Institute, Sichuan Academy of Agricultural Sciences (295)
- A New Genus and Three New Species of Delphacidae from China (Homoptera: Fulgoroidea).....Ding Jinhua [0002 6930 5478], Tian Lixin [3944 4539 2450] and Huang Qilin [7806 0366 2651, deceased], all of Nanjing Agricultural College; Ge Zhonglin [5514 6988 7792], Anhui Agricultural College (302)

- New Species of Eutrichosiphum Essig et Kuwana from China (Homoptera: Aphidoidae).....Zhang Guangxue [1728 1684 1331], Institute of Zoology, Chinese Academy of Sciences (305)
- Two New Species of Chinese Lymantriidae (Lepidoptera)..... Zhao Zhongling [6392 0112 5376], Institute of Zoology, Chinese Academy of Sciences (307)
- A New Species of the Genus Reticulitermes from the Huaping Forest, Guangxi, China (Isoptera: Rhinotermitidae)..... Li Guixiang [2621 2 0 4382], Guangdong Institute of Entomology (309)
- Telenomus (Aholcus) lebedae sp. nov., an Egg Parasite of Lebeda nobilis Walker (Hymenoptera: Scelionidae)..... Chen Tailu [7115 3141 7627], Institute of Zoology, Chinese Academy of Sciences; Tong Xinwang [4547 2450 2489], Institute of Forestry, Hunan Province (311)
- A New Subspecies of Paradoxornis webbianus from Sichuan--P. w. ganluoensis.....Li Gulyuan [2621 2710 0997] and Zhang Qingmao [1728 3237 5399], both of Sichuan Agricultural College (313)
- Subspecific Classification of the Black Stripe Hamsters (Cricetulus barabensis) in China, with Description of a New Subspecies.....Wang Fenggui [3769 6646 2710], Institute of Zoology, Chinese Academy of Sciences (319)
- Scientific Notes
- Descriptions of the Female and Larva of Culex (Eumelanomyia) richei Klein.....Chen Hanbin [7115 3352 1755], Biology Teaching and Research Group, Guiyang Medical College (320)
- Sandfly of Genus Idiophlebotomus Found in China..... Xiong Guanghua [3574 0342 5478], Guan Liren [4619 4539 0086] and Jin Changfa [6855 7022 4099], all of the Institute of Parasitology, Chinese Academy of Sciences; Wang Jusheng [3769 5468 3932] and Gu Yiming [7357 0110 6900], both of Guiyang Medical College; Yuan Taozhong [5913 3447 1813], Public Health and Epidemiology Station, Congjiang County (322)
- On the Study of Chinese Jackdaws.....Chen Fuguan [7115 2591 1351], Department of Biology, Northwest University; Luo Shiyu [5012 2514 2589], Shaanxi Provincial Institute of Zoology; Min Zhilan [7036 5347 5695], Department of Biology, Northwest University (324)

A New Record of Chinese Buccinoid Snail.....Liu Yueying
[0491 2588 5391], Wang Yaoxian [3769 5069 0341] and Zhang
Wenzhen [1728 2429 3791], all of the Institute of Zoology,
Chinese Academy of Sciences (252)

Addendum to the Diagnosis of Trombiculindus (Trombiculindus)
guangdongensis Zhao et Zhang, 1979.....Zhao Shanxian [6392
0810 6343], Guangdong Provincial Public Health and
Epidemiology Station (323)

Haematopinus longus Neum.--A New Record of Sucking Lice
from China.....Deng Guofan [6772 0948 5672], Institute of
Zoology, Chinese Academy of Sciences (296)

New Records of Muscidae from China.....Xue Wanqi [5641
8001 3823], Benxi Municipal Public Health and Epidemiology
Station, Liaoning Province (278)

A Revision of Some Chinese Mosquitoes, 2.....Lu Baolin
[7120 1405 7792] and Li Beisi [2621 5563 1835], both of
the Microbiology and Epidemiology Institute, Academy of
Military Medical Sciences, PLA (321)

Notes on the Mosquitoes New to China, 5.....Lu Baolin
[7120 1405 7792] and Li Beisi [2621 5563 1835], both of
the Microbiology and Epidemiology Institute, Academy of
Military Medical Sciences, PLA (234)

Notes on the Biting Activity of Aedes (S.) flavopictus.....
Liu Jingchun [0491 2529 2504], Anshan Municipal Public Health
and Epidemiology Station (272)

Two New Records of Chinese Birds from Yunnan.....He Jichang
[0149 4764 2490], Department of Biology, Yunnan University;
Yang Yuanchang [2799 0337 2490], Yunnan College of Forestry (314)

New Record of a Subspecies of Alpine Weasel from Xizang
(Tibet).....Zeng Qingguo [2582 1987 0948], Xizang Military
District General Hospital, Chinese PLA; Zhong Yinghong
[6988 2019 3163], Public Health and Epidemiology Station,
Xizang Military District Logistics Department, Chinese PLA (231)

[Note: All articles in journal, except those in "Scientific Notes"
section, are accompanied by English abstracts.]

9717

CSO: 4008

AUTHOR: YANG Yipung [7799 0110 7720]

ORG: Hongdu Radio Plant

TITLE: "New Component of Dual Function--Fuse Resistor"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 7, 25 Jul 80 pp 22-23

ABSTRACT: In recent years, when television sets imported from foreign countries are opened up, strange resistors are often discovered installed on the chassis. These resistors are not closely attached on the board; they are suspended in the air. In some cases, the resistor is covered by a section of fiberglass. This is a fuse resistor. Ordinarily, it functions as a common resistor, but when the circuit is in trouble, overloaded, or when an individual component is broken, it functions as a fuse for cut-off. It can thus be relied upon to protect the major components. When a set is being repaired, the broken fuse can serve to lead to the general location of the trouble. The function and structure of this type of fuse resistors are introduced in the paper.

AUTHOR: WU Yihua [0702 2184 5478]

ORG: Anhui College of Medicine

TITLE: "Photoelectric Tea Leaf Stem Separating Machine"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 7, 23 Jul 80 pp 23-24

ABSTRACT: Photoelectric separating machines are commonly used in seed selection, purification, classification, etc. for processing agricultural and mineral products. This paper introduces one of these machines. It is used for automatic separation of tea leaves from stems. The major theory of the machine is the fact that under a certain light source, the tea leaf and the stem give out optical signals of different strength. When these optical signals are converted into electrical signals by the electronic circuit, a mechanism--electromagnetic valve, is activated to send out a current of air to blow away the stem. Structures of the major components of this machine are described in separate sections of the paper.

AUTHOR: YAN Congju [7051 1872 5281]

ORG: None

TITLE: "Using Fine Tuning Resistor to Substitute for Potentiometer"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 7, 25 Jul 80 p 31

ABSTRACT: In the process of assembling television sets or other small instruments, many potentiometers are needed. Some of them do not need to be constantly in rotation. If fine tuning resistors are slightly modified to replace these potentiometers, the structure of the product may be made tighter, and the cost may also be lower. Several diagrams are given in the paper to demonstrate ways of modification for the purpose of using fine tuning resistor to substitute for potentiometers that are not constantly rotating.

AUTHOR: None

ORG: None

TITLE: "Explanation of Front Cover"

SOURCE: Beijing WUXIANDIAN [RADIO] in Chinese No 7, 25 Jul 80 p 32, front cover

ABSTRACT: The front cover of this issue is a photo of a musical instrument and its creator, engineer TIAN Jinqin [3944 6651 0530]. The musical instrument is an electronic organ controlled by strings instead of a keyboard. There is nothing like it in the world. It can play several tens of types of wind and string instrument music as well as some music of special effects. The electronic musical instrument is being manufactured by Taiyuan Radio Second Plant.

6168

CSO: 4009

AUTHOR: None

ORG: Journal Correspondent

TITLE: "Strengthen Resource Management to Protect the Environment"

SOURCE: Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 80 pp 2-3

ABSTRACT: Most recently, the central party secretary proposed 4 suggestions to the city of Beijing. One of these is for the purpose of making the city of Beijing a beautiful, clean, and first rate modernized city. With respect to those in charge of environmental protection in Beijing, this will be a difficult as well as glorious task. The job involves natural, technical, and social aspects and is interrelated with the development of population, economy, and resources utilization of the city. The most essential of all is the problem of production development and environmental pollution. There are more than 3,000 large and small industries in the city, including petrochemical, steel, agricultural drugs, coking, dyestuff, paper making, and other chemicals that are seriously polluting the environment. The potential for harm is very great and fundamental solutions are needed. According to foreign estimates, in the economic cycle, billions of tons of natural materials enter the environment, and only 20-30 percent of these become final products which are needed by the society. This paper discusses the relationship between proper utilization of natural resources, waste management, and pollution in the aspect of industrial development in Beijing.

AUTHOR: GAO Zhe [7559 0772]

ORG: None

TITLE: "Opinions Concerning the Use of Economic Measures to Manage the Environment"

SOURCE: Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 80 pp 7-8

ABSTRACT: The author believes that there is an urgent need of unifying the two concepts of environment and economy. For example, a paper factory pays two hundred thousand yuan for lye, but the lye-containing waste water is not treated before discharging into the city's sewer system and the water system nearby is contaminated to result in losses of twenty thousand yuan of agricultural products and twenty thousand yuan of fish products. The production cost of the paper factory should in fact include the losses due to environmental pollution. This new concept of environmental pollution cost should be introduced in the practice and planning of the national economy in order that the expense needed to clean up the environment may be guaranteed.

AUTHOR: DING Jiaxin [0775 1096 3563]

ORG: None

TITLE: "How do we Use Laws to Protect the Environment"

SOURCE: Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 80 pp 9-11

ABSTRACT: Suzhou [of Jiangsu Province] is a beautiful city, known as the heaven on earth, but due to the large quantity of waste water and gas discharged by the industries everyday, it is now covered and surrounded by smoke and filthy water. In the period of Jan-Sep 79, 280 letters of protest by the masses were received by the Department of Environmental Protection and 28 disputes between masses and factories occurred. The important reason is imperfect laws. The ENVIRONMENTAL PROTECTION LAWS of Suzhou was announced in Sep 79. Since then, tests have shown a reduction of phenol, cyanide, arsenic, chromium, and phenylbenzene contents in the water as well as a drop of poisonous gas in the atmosphere. The process leading to the decree and the establishment of penalties to bring about an improvement of the environment in Suzhou is told.

AUTHOR: ZHANG Haoyan [1728 3185 3601]

ORG: None

TITLE: "Carcinogenetic Action of Virus of Environmental Pollution"

SOURCE: Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 80 pp 23-25

ABSTRACT: Research studies indicate that many types of virus are carcinogenetic and some C type RNA virus may be related to carcinomas in humans. These C type RNA virus may exist in an individual but are suppressed by either genetic or hormone factors until they are activated by aging, or excessive influence of physical factors or chemical substances which the individual comes into contact as pollutants of the environment. The complex relationship between virus, environmental pollutants, and carcinogenesis is briefly explained.

AUTHOR: YANG Daming [3769 1795 6900]

ORG: None

TITLE: "Strengthen the Research on Bionomical Toxicology"

SOURCE: Beijing HUANYING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 30 pp 26-27

ABSTRACT: Our knowledge concerning how to assess the bionomical effects of pollutants that are entering the environment is very insufficient. For example, the decomposition of pollutants in the bionomical system and the food chain and their metabolic products, toxicity, and extent of accumulation are very much unclarified. Our knowledge of carcinogenesis and mutagenesis is also extremely limited. This paper explains briefly the movement of pollutants in the bionomical system and suggests that studies on the following should be carried out: (1) Total quantity of pollutants in the environment; (2) Residue and final resting place of pollutants; (3) Specific and group toxicity of pollutants and their metabolic products; (4) Extent of amplification, reduction, and transfer of pollutants by organisms in the bionomical system; (5) Effects of pollutants on the structure and function of the bionomical system; (6) Models of effects of pollutants, and work of monitoring and forecasting these effects.

AUTHOR: ZHU Huigang [2612 1920 0474]
YANG Youming [2799 1635 2494]
CHEN Bingheng [7115 4426 5899]
DAI Xiudao [2071 0208 6670]

ORG: None

TITLE: "Environmental Pollution and Heredity"

SOURCE: Beijing HUANYING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 30 pp 28-30

ABSTRACT: This installment of the paper includes the fourth, fifth, and sixth chapters: (4) Mutagenetic and Deformity-causing substances. Substances causing deformed fetus, causing mutation of cells, causing mutation of reproductive cells are briefly and separately explained. (5) Assessment of effects of environmental pollutants on heredity. Due to lack of reliable experimental data, genetic mutation of mammals under low dosage condition is difficult to assess, and still awaits further development of molecular biology and genetic engineering. (6) Examples of genetic effects caused by environmental pollutions: 507 species of deformed fishes in Japan; 17 species in Yaer Lake of Hubei Province; changes of color and shell of bird eggs; incidences of deformed human fetuses.

AUTHOR: ZHAO Shunhua [4392 2181 9470]

ORG: None

TITLE: "Toxicity and Pollution of Thallium"

SOURCE: Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 80 pp 36-37

ABSTRACT: In 1974, a paper "A Report of Typical Cases of Natural Thallium Poison" was published in the journal HUANJING TIZHI YU JIANKANG [ENVIRONMENTAL GEOLOGY AND HEALTH] describing the symptoms of a strange disease among farmers of a mountainous village. The symptoms included the loss of all the hair over night. In industry, thallium is used in electronic components and special alloys. For example, the photosensitive battery of infrared ray is made of thallium oxide. It appears that fish raised in water of thallium content can concentrate a large amount of it to cause natural thallium poison to those who eat the fish. This paper explains the poisonous effect of thallium and the ability of fish, chicken, vegetables, etc. to concentrate thallium, lead, copper, zinc, and other metals.

AUTHOR: ZHANG Lichang [1728 4539 2052]

ORG: None

TITLE: "A Tool for Studying Heavy Metal Pollution of Natural Waters --the Sediments"

SOURCE: Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3, 80 pp 41-42

ABSTRACT: At present, considerable dispute exists with regard to the value of water specimens as the basis for determining water pollution. Water moves, especially that of the rivers. The quality of water changes very fast, and a water specimen represents the condition of a given moment only. This is especially true of such pollutants as heavy metals which are either not dissoluble or of extremely low dissolubility. Generally, under the action of geochemical factors, they usually sink to the bottom of the river or lake. A study of the sediments may produce geochemical morphological significance of the condition of pollution. Based upon the morphology and structure of the heavy metal contents of the sediments, the pollutants may be classified into a portion that is exchangeable, a portion that is combined with silicates, a portion that is combined with iron-manganese oxides, a portion that is combined with organic matter and sulfides, and a residual portion, so that different measures may be adopted to deal with each portion effectively.

AUTHOR: Wu Chuanan [0702 2904 5478]

ORG: None

TITLE: "Pollution and Hard Alloys"

SOURCE: Beijing HUANYING BAOHU [ENVIRONMENTAL PROTECTION] In Chinese No 3, 90 p p 47-48

ABSTRACT: This paper explains the pollution or contamination of hard alloys by impurities which weakens the strength of the alloys. Absolute elimination of such contaminants as pores, graphite, dirt, phase defects, etc. may be impossible and each country of the world sets its own limits of permissible impurity. Impurities of hard alloys and their effects on the strength and test strength of the hard alloys are discussed.

6168

630: 4009

Geochemistry

AUTHOR: WANG Zhonggang [3769 0022 0474]
ZHAO Zhenhua [6392 2182 5478]
ZHAO Huilian [6392 1920 5695]

ORG: None

TITLE: "REE Distribution Patterns of Granites in South China"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 1-12

TEXT OF ENGLISH ABSTRACT: REE determinations for fractional contents by means of chemical X-ray fluorescence spectrometry and the instrumental neutron activation analysis technique were conducted on granitoid rocks, which differ in age, composition and origin, in south China.

Granites under consideration can be divided into three major categories in terms of normalized REE distribution pattern of chondrite and δEu value:

1. REE distribution pattern is approximately expressed by a smooth curve, with unremarkable negative Eu anomaly and δEu value greater than 0.5;
2. REE distribution pattern exhibits a moderately remarkable negative Eu anomaly with δEu value in the range of 0.3-0.4;

[Continuation of DIQIUHUAXUE No 1, Mar 80 pp 1-12]

3. REE distribution pattern gives a greatly remarkable negative Eu anomaly, with δEu value being less than 0.2.

The granites belonging to the first category are mostly older and closely connected with granitization in origin, those of the second category show a number of evidences for their magmatic origin, and those of the third category are especially distinguishable for their characteristic features of later magmatic differentiation and replacement.

AUTHOR: LIU Dongsheng [0491 2639 3932]
CHEN Qingmu [7115 1987 3092]
YU Zhicheng [0151 1807 2052]
YUAN Zhiyun [5913 5365 0061]

ORG: None

TITLE: "Geochemical Environment Problems Concerning the Endemic Fluorine Disease in China"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 13-22

TEXT OF ENGLISH ABSTRACT: Endemic fluorine disease is a chronic fluorine poisoning caused by a high level of fluorine in drinking water or foods. Incidence of this disease has been known in many parts of the world. In China its occurrence has been observed in the northeast, northwest, southwest and some other localities. Investigation shows that it is closely related to geochemical environment. Major fluorine sources in nature include fluorine-rich volcanic rocks, calcareous dolomites, phosphorus-bearing rocks, loess and Quaternary loose sediments. Under special conditions fluorine is concentrated in ground water or soil and seeks its way into the human body through diet. Areas with high fluorine concentration responsible for the fluorine disease can be classified into four types, depending on characteristics of geochemical environment:

[Continuation of DIQIUHUAXUE No 1, Mar 80 pp 13-22]

(1) Arid and semiarid calcium-rich soda saline areas; (2) Semiarid, alternately marine-terrestrial strata with a high degree of salinity; (3) Semihumid iron- and aluminum-rich intermediate-acid soils; (4) Localities where fluorine-rich rocks or deposits are developed and those with high fluorine content as a result of industrial pollution. Based on medical statistics and chemical analyses of water, soil, food and other related samples, this work will provide a scientific background for the prevention and control of fluorine disease.

AUTHOR: FU Huifang [0265 1979 5364]
ZHU Chengming [2612 2052 2494]

ORG: None

TITLE: "Morphological Peculiarities of Synthetic Diamond and a Preliminary Discussion on Its Fine Crystal Growth Field"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 23-30

TEXT OF ENGLISH ABSTRACT: The crystal habit and morphological peculiarities of a synthetic diamond have been studied at various temperatures and pressures. A diagram has been proposed based on experimental data for different crystal morphologies with respect to different P-T conditions. Preliminary discussion has been given to the field of fine diamond crystal growth and a principle is presented for the optimum P-T conditions for fine diamond synthesis.

AUTHOR: WANG Shengyuan [3769 5116 6678]

ORG: None

TITLE: "The Stability of Laihunite--A Thermodynamic Analysis"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 31-42

TEXT OF ENGLISH ABSTRACT: Laihunite, a mineral of ferric and ferrous iron silicate discovered in China in recent years, occurs in high grade metamorphic BIF coexisting with magnetite, quartz, fayalite, ferrosilite and almandine. Complete nets based on Schreinemaker's bundles and partial nets with maximum closure after the method described by H. W. Day have been constructed by taking into account the existence of this mineral in order to illustrate phase relations for the (n+3) multisystem in the system of $\text{Fe}_2\text{O}_3\text{-FeO-SiO}_2$. Judging from Lindsley's experimental data on ferrosilite, laihunite is expected to be stable at pressures probably higher than 15 Kb. Two-pyroxene and olivine-clinopyroxene geothermometers give temperatures of formation between 600-700°C. Free energy of laihunite calculated according to Chen's method and estimated values of heat capacity allow oxygen fugacity to be plotted against temperature at different total pressures with respect to a number of univariant reactions in which lai-hunite is involved. The log f_{O_2} -T diagram demonstrates that to a first approximation the stability fields of laihunite overlap the upper part of the magnetite

field, but their upper limit is a little beyond the hematite-magnetite equilibrium.

The three major requirements for laihunite stability, i.e., an unusually high pressure, a temperature in the order of 600-700°C and a relatively higher oxygen fugacity, are mutually exclusive in common geological environment, which will probably account for the rare occurrence of this mineral in nature. For the BIF in which laihunite occurs, the pressure caused by the weight of overlying strata is not high enough to give rise to its formation, even in the extreme case of geothermal gradient. Therefore it is suggested that additional tectonic pressure in response to plate activity might have been involved.

AUTHOR: SHI Jixi [2457 4949 6932]
LI Benchao [2621 2609 6389]

ORG: None

TITLE: "Origin of Rich Magnetite Ores in the Gongchangling Area as Evidenced by Fluid Inclusion Studies from the Anshan-Benxi Region, Northeast China"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 43-53

TEXT OF ENGLISH ABSTRACT: Gongchangling high-grade magnetite ores, which constitute one of the major rich iron deposits in China, occur in the BIF of the Anshan Group in Precambrian metamorphic rocks. But their origin has long been a controversial problem, although most researchers are in favor of the concept that they are genetically related to the hydrothermal process connected with migmatite.

On the basis of field observations, this problem has been dealt with in this paper in light of fluid inclusion studies. The results show that hydrothermal activity was widespread in this region, which can be divided into two stages. The late stage hydrothermal activity was intensively developed around rich iron deposits. The formation temperature of the late stage hydrothermal fluids is

[Continuation of DIZIYUHUAXUE No 1, Mar 80 pp 43-53]

in the range of 487-505°C, and they are slightly alkaline with a salinity of 13.2-23.1 wt %, consisting mainly of Na^+ , Ca^{++} , Cl^- , SO_4^- , etc.

As revealed by temperature measurements, the formation temperatures of fluid inclusions are quite uniform from place to place within the vast areas of this region, and the comparison of these temperatures between rich ores and migmatite and wall rocks indicates that the late hydrothermal fluids are of metamorphic origin. The authors suggest that the rich magnetite ores in the Gongchangling Range seem to be the result of the reworking process (alteration) by metamorphic hydrothermal fluids in response to regional metamorphism on some sedimentary ore deposits that were originally relatively rich in iron.

AUTHOR: ZHOU Weixun [0719 4850 0534]
FENG Weiheng [7458 4850 1854]

ORG: None

TITLE: "Some Problems Concerning the Chronological Division of Mesozoic Granites in Nanling Region, South China"

SOURCE: Beijing DIQIYUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 54-58

TEXT OF ENGLISH ABSTRACT: (1) Field observations and age frequency spectra indicate that Mesozoic granites in the Nanling region are of non-orogenic origin and must be divided in accordance with stratigraphic timescale rather than with geotectonic cycles.

(2) Isotopic ages indicate that some batholiths in the axial part of Caledonian belts belong to Mesozoic granites. However, field observation and laboratory studies show that they were primarily formed during the early Paleozoic era and have been subjected to alteration of various degrees.

(3) With regard to intrusions of which isotopic ages are greater than those defined by stratigraphic evidence, isotopic measurements will provide the true age of formation of the massives while stratigraphic evidence should be taken as a reflection of local regeneration.

AUTHOR: QIU Yuzhuo [5941 1938 0587]

ORG: None

TITLE: "Modification of Spindle-Calculation Method and Discussion of Its Precision"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 59-64

TEXT OF ENGLISH ABSTRACT: Several simplified equations are presented for the spindle-calculation method in measuring the refractive indices of minerals. By two (uniaxial) or three (biaxial) measurements in two different immersion media, the principal indices of refraction of a mineral can be calculated according to the I.R. of immersion media and the orientational angles of the non-principal refractive indices whose I.R. are equivalent to that of the immersion media. This method will be applicable also for measurements in solid immersion media.

The precision of this spindle-calculation method has been discussed. In general, its precision can be compared with the traditional immersion method. The author suggests that the major factors affecting the precision of this method are birefringence of the determined minerals and errors in measurements. A table is given of permissible deviation angles for extinction position determination.

AUTHOR: None

ORG: Measurement Group of Standards for Sulfur Isotopic Geology

TITLE: "National Standards for Sulfur Isotopic Geology"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 65-73

TEXT OF ENGLISH ABSTRACT: LTB-1 pyrrhotite and LTB-2 pyrite have been adopted as the national standards for sulfur isotopic geology in China since 1 February 1978. These samples have been measured by reference to the worldwide standard CDT (Troilite), giving values of $\delta^{34}\text{S}$ of $-0.3 \pm 0.1\%$ and $+1.8 \pm 0.2\%$ for LTB-1 and LTB-2 respectively.

AUTHOR: GENG Jianmin [5105 1696 3046]

ORG: None

TITLE: "Rubber Polishing--A New Polishing Method in Polished Section Preparation"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 74-76

TEXT OF ENGLISH ABSTRACT: Polishing is carried out on a rotating rubber disc in this method. Rubber of high quality with good elasticity is required and the rubber disc is grooved for holding polishing abrasives. Rough and fine polishing can be achieved depending on the grain size of abrasives used. The quality of polishing is superior to that by traditional polishing on felt. Excellent polished sections can be obtained after a very short time of polishing, regardless of the physical properties such as hardness and brittleness of a mineral. By choosing a suitable abrasive, structure polishing can also be conducted, i.e., the micro-structure will be revealed just by polishing without etching by any chemical agents.

AUTHOR: HUANG Bin [7806 2430]

ORG: None

TITLE: "An Ion Emitter for Lead Isotope Analysis"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 77-84

TEXT OF ENGLISH ABSTRACT: A new boron-silicon gel ion emitter is developed for lead isotope analysis. As a result, a sensitivity of about 10^{-7} As/ μ g can be obtained, which permits mass spectrometry to be conducted for lead in the order of 10 nanogram. The mass spectrometry blank weight of lead is about 0.2 nanogram. As compared with zirconium-silicon gel, the ion beam from lead is more stable.

AUTHOR: SHI Jiaxin [2457 0502 6580]

ORG: Yunnan Geological Laboratory, Yunnan Province

TITLE: "A New Three-Axis Spindle Stage for Direct Measurement of 2V and Indicatrix Orientation Determination"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 85-90

TEXT OF ENGLISH ABSTRACT: A new three-axis spindle stage has been developed for the direct measurement of 2V and indicatrix orientation determination. Its design is simple and can be manufactured without difficulty. The result obtained is reliable and can be checked readily.

This spindle stage possess the advantages over the extinction curve method, conoscope method and a number of computational approaches based on one-axis spindle stage of being simpler to operate and of providing more accurate results. One further advantage of this apparatus over the spindle modified by N. N. Roy is that measurement can be made over a wide range of angles (35-87°) between the optical axis plane and the needle axis. The measured mineral can be removed for X-ray structural analysis and electron microprobe analysis if necessary. It can also be used as a one-axis spindle stage or the variable axis spindle stage proposed by H. Villarroel et al. Temperature-variation apparatus can be attached to it for single and double variable oil immersion methods.

AUTHOR: ZHANG Yinben [1728 5593 2609]

ORG: None

TITLE: "Birdseye Structure of Carbonate Rocks"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 91-95

TEXT OF ENGLISH ABSTRACT: General characteristics of birdseye structure are discussed and distinctions are proposed between birdseye structure and a number of other features, such as recrystallization, tiny holes resulting from dissolution and suncrack shrinkage. The "birdseye" commonly found in southwest China owes its origin to gass bubble, shrinkage and other mechanisms.

AUTHOR: ZHOU Zheng [0719 2973]

ORG: None

TITLE: "A Method for Clay Coating Separation"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 96-100

TEXT OF ENGLISH ABSTRACT: A procedure is presented for clay coating separation on ancient soil. The sample is first put into water until the soil is fully dissociated. Then a clay coating with a purity of 98-99 percent can be obtained following heavy liquid separation, magnetic separation and other techniques.

AUTHOR: ZHAO Yiyang [6392 0001 7122]

ORG: Institute of Oceanology, Chinese Academy of Sciences

TITLE: "Geochemistry of Uranium in Sediments of the Bohai Gulf, China"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 101-105

TEXT OF ENGLISH ABSTRACT: The following conclusions can be drawn from the work reported in this paper:

- (1) Determinations were made for uranium on 16 samples by spectrophotometric method. Uranium content in the seabed sediments of the Bohai Gulf ranges from 1.6 to 6.3 ppm, with an average of 4.3 ppm.
- (2) Statistical data show a close relationship between U concentration and grain size. Relatively larger amounts of uranium are accumulated in mud than in sand. The bulk of uranium is assumed to be derived from terrestrial detrital minerals.
- (3) A positive correlation between U and Fe has been recognized. A similar relation can also be noticed with respect to U and Al. The plot of U concentration against Fe is linear, and can be expressed by the linear regression equation: $Y = -0.37 + 1.35X$. The plot of U against Al gives an equation of $Y = -2.48 + 1.01X$.
- (4) The average U/C_{org} ratio for these sediments is 7×10^{-4} . The average ratios of U/P, U/Mn and $U/CaCO_3$ are 100×10^{-4} , 50×10^{-4} and 2×10^{-4} respectively.

[Continuation of DIQIUHUAXUE No 1, Mar 80 pp 101-105]

(5) Compared with the abundance of other shelf sediments, the average concentrations of U in the area under consideration are close to those in the shelf of Japan, the Gulf of Mexico and the Black Sea. Uranium abundance in sediments from the floor of the Bohai Gulf is comparable to that of the continental crust but differs from that of deep-sea clay.

AUTHOR: LU Huanzhang [4151 3562 4545]
JIANG Bangjie [3068 6721 2638]
SUN Xinyi [1327 2450 0001]

ORG: None

TITLE: "Application of Inorganic Gas Chromatography to Research of Fluid Inclusion Composition"

SOURCE: Beijing DIQIUHUAXUE [GEOCHIMICA] in Chinese No 1, Mar 80 pp 106-110

TEXT OF ENGLISH ABSTRACT: CXL-101 inorganic gas chromatography is characterized by its high sensitivity, high speed, small quantity of sample required, less adsorption and reliability of result. It is especially suitable for the determination of H_2O and CO_2 in fluid inclusions. H_2O and CO_2 contents in fluid inclusions of 41 samples were measured by this instrument from a number of types of tungsten and quartz deposits. Regular variation has been found in the content of H_2O , i.e., it decreases with decreasing distance toward the parent rock, or with increasing temperature, and vice versa. This regularity may be ascribed to the origin of fluid, distance between parent rock and ore deposit, temperature of formation, changes in the way of fluid movement and nature of the country rocks as well.

9717

CSO: 4009

AUTHOR: GAN Fuxi [1626 4395 3588]

ORG: Director, Laser Society of Shanghai

TITLE: "Developing Materials Science for Laser Technology"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 1-3

ABSTRACT: Two requirements for solid-state lasers are development of short-wavelength lasers and of tunable lasers. Tunable solid-state lasers require broad upper or lower energy levels such as in $\text{Cr}^{3+}:\text{BeAl}_2\text{O}_4$ or $\text{MgF}_2:\text{Ni}^{2+}$ or Co^{2+} . More work should be done on 3d, 4d, 5d and 6d ions. Use of laser light for monochromatic selective stimulation can produce high energy short wavelength output, e.g. with pseudomolecular laser optical pumping of Tb^{3+} or Tm^{3+} in-organic glasses and crystals or organic chelate liquids or vapors. Hence two important general areas of work in laser media are the production of new laser glasses and crystals and spectroscopic investigation. Other important materials-related questions involve development of materials with a high second-order nonlinear polarization constant and a low third-order constant; development of new shutter materials; development of fast storage and memory materials; and development of materials with special ultraviolet capabilities. Important areas of work in laser-related optical media include: work in optical fibers for communications; development of low-loss, high heat transmission IR and UV window materials; and development of new optical glasses.

AUTHOR: WANG Zhijiang [3769 0037 3068]

ORG: Deputy Director, Laser Society of Shanghai

TITLE: "Some Problems of Holography"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 3-8

ABSTRACT: The factors governing holographic recording and information capacity are discussed, with particular reference to the position of the plate and the pupil, and to problems of holographic microscopy. The problems of three-dimensional displays are considered, and the possibilities of application of polychromatic holography discussed. The principles and problems of projection-type holography are also briefly examined.

AUTHOR: LIU Demin [0491 1795 3046]

ORG: Deputy Director, Laser Society of Shanghai

TITLE: "Progress in Laser Treatment of Malignant Tumors"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 8-10

ABSTRACT: The main approaches to laser treatment of malignant tumors include: use of a laser beam for excision of tumors, use of a laser beam to gasify tumors, nondestructive use of irradiation to treat tumors, use of optical fibers for laser irradiation of tumors in the digestive or respiratory tracts, and combined methods. Progress in laser treatment has included laser treatment of more extensive areas, laser treatment of recurrent maxillary sinus tumors, treatment of scattered recurrent facial tumors, and laser treatment of ulceration produced by radiation treatments. Future developments may include: nondestructive early diagnosis of tumors by lasers, nondestructive laser treatment of tumors, new approaches in comprehensive laser treatment of tumors, and basic theoretical research on the effect of laser light on tumor cells.

AUTHORS: GAO Peijuan [7559 1173 1221], NIE Chaojiang [5119 2600 3068],
YANG Tianlong [2799 1131 7893], SHU Haizhen [5289 3189 3791]

ORG: Shanghai Institute of Optics and Precision Instruments, Chinese Academy of Sciences

TITLE: "Ten Orders of Stimulated Raman Scattering Obtained from an Optical Fiber"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 11-14

TEXT OF ENGLISH ABSTRACT: The paper describes the experimental investigation of stimulated Raman scattering obtained from a multimode fiber. Ten orders of stimulated Stokes scattering at wavelengths between 546 and 702 nm were obtained from a 480 m multimode, low-loss graded quartz fiber pumped by a 532-nm frequency-doubled YAG-Nd laser beam with a pulse duration of 7 ns, an output power of 0.7 MW and repetition rates of 5 and 10 PPS.

AUTHORS: ZHANG Tong [1728 0681], LI Fengying [2621 7364 5391]

ORG: Institute of Laser Technology, Shanghai

TITLE: "A New Pulsed Dye Laser With Grating and Etalon in Symmetric Arrangement"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 15-18

TEXT OF ENGLISH ABSTRACT: A grating used with pulsed dye lasers at near-grazing incidence has been further improved. Two problems have been solved: inserting the intracavity etalon and selecting the optimal blazed grating and its orders at grazing incidence. A new version is presented in which the grating and the etalon are symmetrically arranged. Single-mode operation and output linewidth on the order of a few hundred MHz (below 0.006 Å) can be obtained.

AUTHORS: WANG Mingchang [3769 2494 1603], WANG Wucheng [3769 2745 2052],
CHEN Kingfeng [7115 2622 7364], LU Chunying [4151 4783 5391]

ORG: Shanghai Institute of Optics and Precision Instruments, Chinese Academy of Sciences

TITLE: "Investigation of an Intracavity CO₂ Waveguide Laser"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 19-22

TEXT OF ENGLISH ABSTRACT: Transmission and coupling losses for the EH₁₁ waveguide mode are analyzed and calculated and the effect of bending of the waveguide axis on laser oscillation is considered. A sealed-off intracavity waveguide CO₂ laser has been developed on the basis of these considerations. The paper describes the configuration of the device and experimental results. The diameter of the waveguide tube, discharge parameters, cooling and the like are discussed.

AUTHORS: CAI Lijuan [5591 5461 1221], YU Linxiu [0305 2651 4423], ZHANG
Kenian [1728 0344 1819]

ORG: Institute of Laser Technology, Shanghai

TITLE: "A Long-Lifetime CO_2 Laser"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 23-25, 31

TEXT OF ENGLISH ABSTRACT: It is shown experimentally that three major factors must be considered to obtain a CO_2 laser with long lifetime. They are: 1) elimination of slow gas leakage, 2) selection and oxidation of electrode material, 3) decreasing the decomposition of CO_2 molecules. This has been done in the following way: the laser tube is not dried, but filled with water vapor, and the electrode material must be degassed in vacuo and oxidized by filling with oxygen gas. When a pure silver electrode is employed, gas mixtures with compositions of (1) $\text{CO}_2\text{-N}_2\text{-He-Xe-H}_2\text{O}$, (2) $\text{CO}_2\text{-CO-He-Xe-H}_2\text{O}$, (3) $\text{CO}_2\text{-N}_2\text{-CO-He-Xe-H}_2\text{O}$ give operating lifetimes of respectively (1) 10,476 hours, (2) 9,185 hours (still in operation), (3) 9,207 hours (still in operation); when a pure nickel electrode is used with $\text{CO}_2\text{-N}_2\text{-He-Xe-H}_2\text{O}$, the operating life is only 1,644 hours.

AUTHORS: HE Xuemei [0149 7185 2734], TANG Yuanfen [0781 0337 3083],
FANG Xuanliang [2455 6513 2597], XU Liangying [1776 5328 3841]

ORG: Shanghai Institute of Ceramics, Chinese Academy of Sciences

TITLE: "Investigation of the Holographic Properties and Applications of
 $\text{Ce-Ba}_x\text{Sr}_{1-x}\text{Nb}_2\text{O}_6$ "

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 26-31

TEXT OF ENGLISH ABSTRACT: This paper reports the results of an investigation of the holographic properties and some application experiments on $\text{Ce-Ba}_x\text{Sr}_{1-x}\text{Nb}_2\text{O}_6$ single crystals. Factors such as the composition of the crystal, the amount of Ce dopant, exposure level and orientation of the crystal faces affect the holographic properties. The maximum diffraction efficiency of Ce-SBN is over 90 percent. The exposure level was 14 mJ/cm^2 with an efficiency of 10 percent. As recorded with an Ar^+ laser, the optical storage sensitivity of the crystal is higher, and an He-Ne laser can be used for recording, reading and erasing.

AUTHORS: ZHAO Yeying [6392 8518 5391], MEI Jiafu [2734 1367 4395],
XI Weijie [1153 0251 2638], YAO Datong [1202 6671 0681]

ORG: ZHAO of Institute of Laser Technology, Shanghai; MEI, XI and YAO
of Shanghai Institute of Ship Research, Ministry of Communications

TITLE: "Measurement of Mechanical Parameters with Laser Speckle Interferometry"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 32-34,
38

TEXT OF ENGLISH ABSTRACT: The basic principles of laser speckle interferometry are described and testing methods for such mechanical parameters as plane displacement, rotation angle and vibration discussed, along with problems of sensitivity. Demonstrations are given.

AUTHOR: YANG Richang [2799 2480 2490]

ORG: Institute of Agricultural Science, Qingpu County, Shanghai

TITLE: "Laser Breeding of Rapeseed and Experimental Planting"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 35-37

TEXT OF ENGLISH ABSTRACT: A laser was used for rapeseed breeding of a new strain with earlier maturity and higher yield was selected. In comparison with existing strains, it matured three days earlier with a 15 percent increase in yield. Good results have been obtained in large-area plantings.

AUTHOR: HU Ronghua [5170 5554 5478]

ORG: Yueyang Hospital, Institute of Traditional Medicine, Shanghai

TITLE: "Use of an Argon Laser in the Treatment of 45 Cases of Traumatic Paraplegia"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 37-38

TEXT OF ENGLISH ABSTRACT: The preliminary conclusion is drawn that the use of an argon laser in the treatment of traumatic paraplegia, both incomplete and complete, appears to be superior to other clinical methods of treatment.

AUTHORS: WU Qingzhen [0702 1987 6297], GAO Boduo [7559 0590 6993],
ZHUO Ruipeng [0587 3843 7720], HAN Yusheng [7281 3768 2573]

ORG: WU and GAO of Dermatology Department, Ruijin Hospital, Second Medical College, Shanghai; ZHUO and HAN of Department of Biophysics, Second Medical College, Shanghai

TITLE: "Investigation of the Mechanism of YAG:Nd Laser Therapy for Angioma"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 39-42

TEXT OF ENGLISH ABSTRACT: In this experimental study, a YAG:Nd laser beam was applied directly to a cock's comb to evaluate its effect on vascular tissue. The YAG:Nd laser used had a wavelength of 1.06 micrometers and an output power of 25 watts. Its spot size was constant at 2.5 mm. Biopsies were taken at 30 minute intervals after irradiation. Histopathologic study of the cock's comb wound was carried out using the optical and electron microscopes, which showed that tissue impairment produced by the laser was similar to that of thermal burns, varying from superficial second degree to deep second and third degree, depending on the length of exposure. In addition, histological study showed that the laser impaired the tissue with a three-dimensional effect.

AUTHORS: DING Aihua [0002 1947 5478], SUN Shifen [1327 2514 5358],
CHENG Jian [2052 0256], Zhang Hengfang [1728 1854 5364],
LIANG Zijun [2733 1311 0971], JIN Huiming [6855 1920 6900]

ORG: DING, SUN, CHENG and ZHANG of Gynecological and Obstetrical Hospital,
First Medical College, Shanghai; LIANG and JIN of Biophysics and Patho-
physiology Teaching Group, First Medical College, Shanghai

TITLE: "He-Ne Laser Therapy of Adnexitis"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 43-45

TEXT OF ENGLISH ABSTRACT: Since April 1978, the He-Ne laser beam (20 mW) has been used for treatment of patients suffering from adnexitis in our hospital. The area for irradiation was selected according to the related acupuncture points. The results were quite satisfactory. The total effective rate was as high as 93.6 percent for patients with moderate to severe symptoms. Two of who proved to have tubal obstruction became pregnant after treatment. Some patients showed in a follow-up laboratory survey that their abnormal ESR rate and WBC count had returned to normal levels. Basal body temperatures, vaginal smears for hormonal evaluations and urinary pregnandiol estimations indicated that the laser beam dosage used did not alter normal ovarian function. After the treatment, the abnormally high blood viscosity found in these patients was restored to the normal range, with the changes usually proportional to the degree of clinical improvement

[continuation of Shanghai JIGUANG No 4, Apr 80 pp 43-46]

clinical improvement. The areas subjected to the laser beam on experimental rabbits showed the same degree of capillary dilatation and plasma exudation. The above results are only preliminary findings; more extensive studies must be conducted before definite conclusions can be drawn.

AUTHORS: LIU Demin [0491 1795 3046], WEI Xiubing [7279 4423 0393],
YANG Fushou [2799 4395 1108], ZHANG Jinhong [4545 6930 7703],
XU Dawen [6079 6671 2429], YANG Jinlong [2799 6855 7893]

ORG: LIU and WEI of Department of Laser Medical Research, First Medical College, Shanghai; YANG Fushou of Seamen's Hospital, Shanghai; ZHANG and XU of Institute of Laser Technology, Shanghai; YANG Jinlong of Institute of Pharmacology, Shanghai

TITLE: "Immunizing Effect of N₂ Laser Irradiation on Rats and the Effect of N₂ Laser Irradiation on Cancer Cell Cultures of Mice"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 46-49, 42

TEXT OF ENGLISH ABSTRACT: The experimental results of nitrogen laser irradiation of tumors found in several groups of white rats, observations of changes in their main internal organs and immunized organs, and pathologic changes in their tumors, are described. Investigations of a cancer cell culture after irradiation with an N₂ laser of S180 sarcomas of white mice are also reported. These indicate that the irradiation not only strengthens the immunity of the body but also arrests the tumors. These results show that irradiation may be a comparatively ideal unspecific origin of stimulation to step up organic immunization, and that the N₂ laser may be used as a new auxiliary means of curing malignant tumors.

AUTHORS: LIU Bingrong [0491 3521 2837], SHEN Fute [3088 4395 3676]

ORG: LIU of Department of Biophysics, Second Medical College, Shanghai; SHEN of Department of Surgery, Ruijin Hospital, Second Medical College, Shanghai

TITLE: "An Experimental Study and Electron Microscope Observation of Rabbit Liver Resection Using a CW Nd:YAG Laser as a Light Scalpel"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 50-53

TEXT OF ENGLISH ABSTRACT: Partial liver lobe resection with a CW Nd-YAG laser as a light scalpel was carried out in 10 adult rabbits, which showed the usefulness of the focused laser beam in liver surgery. The laser output was 15-20 W. SGPT measurements and blood routine were conducted both pre-operatively and postoperatively. The cut edge was bloodless with a 1-3 mm layer of carbonization and coagulation in the surrounding tissue. Twenty-four hours after the operation, SGPT had increased to more than 130 units, while blood hemoglobin had decreased seriously. Both SGPT and blood hemoglobin returned to the normal level 7 days after the operation. Under the microscope, agglutination of erythrocytes in venules was observed within the necrotic zone 2 mm from the cut edge. The submicroscopic structure of the hepatic cells observed with the electron microscope showed a different degree of thermal damage according to the distance from the cut edge. Within 3 mm

[continuation of Shanghai JIGUANG No 4, Apr 80 pp 50-53]

of the cut edge, the submicroscopic structure was not complete, but cells 4-5 mm from the cut edge showed complete submicroscopic structure. Autopsies performed 1-3 months after the operation showed satisfactory healing and liver regeneration without infection.

AUTHORS: HE Fangde [0149 5364 1795], OU Pingan [2962 1627 1344],
KUI Haiyun [5566 3189 0061]

ORG: Medical Laser Laboratory, Huadong Hospital, Shanghai

TITLE: "Irradiation Effect of Low-Power Laser on the Healing of Wounds in Experimental Animals"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 53-56

TEXT OF ENGLISH ABSTRACT: Experimental results of excised wounds in the skin of 71 rabbits irradiated by lasers are reported, with emphasis on morphological and histologic investigations. No effect was observed for an He-Cd laser, while obvious effects were shown by the He-Ne and CO₂ lasers. The preliminary conclusion is that the mechanism for promoting the healing of wounds may be improvement of blood and lymph circulation as well as stimulated regeneration of fibroblasts.

AUTHOR: None

ORG: None

TITLE: "Science Notes"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 pp 57-64

ABSTRACT: The following science developments are described: (1) a plane crystal laser dislocation interferometer and its applications; (2) a calorimeter for high pulse repetition rate lasers; (3) light-induced transient gratings in organic dyes and a grating dye laser; (4) automatic determination of single slit diffraction; (5) design and application of a neodymium laser machine; (6) a review of quantitative analysis of laser holographic three-dimensional displacement; (7) a dual-channel laser photometer; (8) a comparison-method non-quarter-wavelength film thickness controller; (9) exploration of some theoretical problems of a phase comparison laser rangefinder with automatic digital display; (10) animal experiments and clinical applications of a dye laser ophthalmologic treatment machine; (11) treatment of chronic colitis endoscopically by means of an He-Ne laser; (12) damage to rabbit eye by a nitrogen laser.

AUTHOR: None

ORG: None

TITLE: "High Output Power He-Ne Laser Series"

SOURCE: Shanghai JIGUANG [LASER JOURNAL] in Chinese No 4, Apr 80 outside back cover

ABSTRACT: A series of high power He-Ne lasers produced by the Shanghai Institute of Laser Technology is advertised. The five models (400A, 700A, 1000B, 1500A and 2000A) have outputs ranging from approximately 7 to approximately 60 mW continuous wave at 6328 Å. Longitudinal mode spacing, beam diameter, beam divergence and long-term stability are specified. Prices with power supply range from 2,500 to 9,000 yuan.

8480

CSO: 4009

AUTHOR: WU Ciqian [0702 5417 3383]
LIN Wei [2651 0251]

ORG: None

TITLE: "The First Characteristic Problem for the Systems of Hyperbolic Equations"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 1-13

TEXT OF ENGLISH ABSTRACT: What we call the first characteristic problem for the system of hyperbolic equations

$$\left[\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} \frac{\partial^2}{\partial x^2} + 2 \begin{pmatrix} b_1 & 1 \\ b_2 & b_1 \end{pmatrix} \frac{\partial^2}{\partial x \partial y} + \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix} \frac{\partial^2}{\partial y^2} \right] \begin{pmatrix} u \\ v \end{pmatrix} = 0 \quad (H_1)$$

$$b_2 = b_1 - \frac{1}{2} \left(k + \frac{1}{k} \right) b_1 + \frac{1}{4} \neq 0, \quad b_1 \neq 0, \quad 0 < k < 1,$$

or

$$\left[\begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix} \frac{\partial^2}{\partial x^2} + 2 \begin{pmatrix} b_1 & 1 \\ (b_1 - \frac{1}{4}) & b_1 \end{pmatrix} \frac{\partial^2}{\partial x \partial y} + \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix} \frac{\partial^2}{\partial y^2} \right] \begin{pmatrix} u \\ v \end{pmatrix} = 0, \quad b_1 \neq 0 \quad (H_2)$$

[Continuation of ZHONGSHAN DAXUE XUEBAO No 1, Feb 80 pp 1-13]

is to look for the unknown functions u, v , satisfying the characteristic conditions:

$$u|_{l_1} = \varphi_1(x), \quad u|_{l_2} = \varphi_2(x), \quad v|_{l_1} = \phi_1(x), \quad v|_{l_2} = \phi_2(x),$$

$$-\infty < x < +\infty,$$

where l_1, l_2 are two characteristic lines of (H_1) or (H_2) .

The sufficient and necessary conditions for the uniqueness of the first characteristic problem, as we know, are still left open. In this paper we completely solve the above-mentioned problem. In addition, we find out all intrivial solutions for (H_1) and (H_2) .

AUTHOR: CAI Chengwu [5591 2110 2976]
CHEN Shuhui [7115 2885 6540]

ORG: None

TITLE: "Simultaneous Iteration Methods for Generalized Eigenvalue Problems of Non-symmetrical Matrices"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 14-23

TEXT OF ENGLISH ABSTRACT: In this paper, the generalized eigenvalue problems $Kq = \lambda Mq$ are discussed, where K, M are real non-singular matrices. Two simultaneous iteration methods are presented for obtaining the first few eigenvalues and corresponding eigenvectors. The results of some numerical tests are given. When K, M are symmetric, these methods are identical with the subspace iteration method.

AUTHOR: WANG Daqi [3769 1129 7784]
ZHU Yunhua [2612 0542 5478]
CHEN Zhitian [7115 1807 1815]

ORG: None

TITLE: "The Selective Principle of Weights in the Method of Damped Least Squares"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 24-39

TEXT OF ENGLISH ABSTRACT: This article illuminates the selective principle of weights, and this principle inducts into new dealing method of damped least squares.

AUTHOR: DENG Jixian [6772 7162 6343]
 SITU Rong [0674 1778 2837]
 XU Lijun [6079 0491 0193]

ORG: None

TITLE: "Calculus of Power Spectrum of Impulse Signal with Random Drift"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 40-47

TEXT OF ENGLISH ABSTRACT: Let

$$\xi(t) = \sum_{n=-\infty}^{\infty} a_n \tilde{g} \left[\frac{t-t_{1n}}{\tau_n} \right]$$

denote the random process of encoding impulse signal interfered with by noise. In this paper we concentrate our attention on the random impulse process with period T. Under the conditions of our theorem, the power spectrum would be

$$F(\omega) = \frac{1}{T} \left\{ B(0) [E |\tau_n \tilde{G}(\omega \tau_n)|^2 - |\Psi(\omega)|^2 |\varphi_n(\omega)|^2] + |\Psi(\omega)|^2 |\varphi_n(\omega)|^2 \mathcal{F}[B(\tau)] \right\}.$$

Particularly, if $\tau_n \equiv 1$, $\varphi_n \equiv 0$, then

$$\xi(t) = \sum_{n=-\infty}^{\infty} a_n \tilde{g}(t - nT),$$

[Continuation of ZHONGSHAN DAXUE XUEBAO No 1, Feb 80 pp 40-47]

and

$$F(\omega) = \frac{1}{T} |\tilde{G}(\omega)|^2 \left[B(0) + 2 \sum_{n=1}^{\infty} B(n) \cos n\omega T \right].$$

We have obtained, therefore, a precise formula under wider conditions than Bennet used in obtaining his approximate formula.

AUTHOR: None

ORG: Research Group of Fracture Toughness, Physics Department

TITLE: "The Influence of Sharpness of the Crack Tip and Morphology of Graphite on the K_{IC} of Ductile Iron"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 48-54

TEXT OF ENGLISH ABSTRACT: The influence of the radius of curvature of crack tip (ρ_0) on the K_{IC} of ductile iron was investigated. Results show K_{IC} was increased conspicuously with ρ_0 , so specimen preparing for K_{IC} measurement must have fatigue crack.

The influence of morphology of graphite on K_{IC} was also investigated. Results show that K_{IC} is not obviously dependent on the size of graphite particles and grade of spheroidization.

The characteristics of P-V curve of ductile iron obtained from the three point bend testing are discussed.

AUTHOR: ZHONG Honghai [6998 4767 3189]
ZHANG Chunxiang [1728 4783 4382]

ORG: None

TITLE: "Application of the Fast Fourier Transform to the Gamma-ray Spectra Analysis"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 55-60

TEXT OF ENGLISH ABSTRACT: The mathematical method of using the Fast Fourier Transform for processing the data of the γ -ray spectra has been discussed. It not only simplifies the data processing in the calculation of the response matrix of γ -ray spectra, but also can be used to do data analysis with the computer. In addition, the fitting discrepancy in this method is discussed.

AUTHOR: HONG Ruiyu [3163 5605 3768]
CHEN Zhixing [7115 1807 5887]
ZHANG Yala [1728 0068 2139]

ORG: None

TITLE: "The Correlation Diagram of Nonsymmetric Pericyclic Reaction"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 61-67

TEXT OF ENGLISH ABSTRACT: The correlation diagrams of nonsymmetric pericyclic reactions were made by HMO calculation. According to Tang's suggestion, by using a parameter ξ which represents the degree of reaction, we calculated the eigenvalues and orbital coefficients for different values of ξ , and made the correlation diagrams, all the coefficients changing smoothly. It shows clearly that there are crosses in the correlation diagram for $[\pi^4_a + \pi^2_s]$ or $[\pi^4_s + \pi^2_a]$. The result is different than that found in the references.

The cycloaddition reactions of butadiene with allyl free radical or cation or anion are all thermally allowed because orbitals of the transition state are separated by the nonbonding orbital.

AUTHOR: KONG Pinyan [1313 5111 7346]
ZHONG Guangtao [6988 1639 3447]
RONG Qingxin [1369 1987 2450]
CHEN Weimin [7115 3634 3046]
YANG Youqiang [2799 2589 1730]

ORG: None

TITLE: "Extraction-Spectrophotometric Determination of Trace Amounts of Uranium in Natural Waters"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 68-75

TEXT OF ENGLISH ABSTRACT: The present paper describes a new extraction-spectrophotometric method for determining trace amounts of uranium in natural waters. The method is based on the fact that the uranium (VI)-5-Br-PADAP complex can be extracted with n-butyl acetate and the interfering ions, which possibly present in natural waters, can be masked with CYDTA, sulfosalicylic acid and sodium fluoride. With the recommended procedure, trace amounts of uranium in the river water, water supply and well water have been determined with good accuracy and the recovery of uranium is between 96 and 102 percent. The detection limit of the proposed method is $0.5 \mu\text{g/liter}$.

AUTHOR: MO Jinyuan [5459 6855 0997]
LIN Wenru [2651 2429 1172]
OU Zhaowen [0575 0340 2429]
ZHOU Liangduo [0719 5328 6995]
WANG Jiangnan [3769 3068 0589]
RUAN Yanping [7086 3601 5493]

ORG: None

TITLE: "Chalcogenide Ceramic Membrane as Solid-state Copper-selective Electrode"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 76-82

TEXT OF ENGLISH ABSTRACT: Chalcogenide ceramic membrane prepared by a new method of fusing the mixture of a solid copper-silver alloy and elemental sulfur (selenium or tellurium) in the mold of a graphite rod with a hole at a coal-gas burner for five minutes has been developed as a selective electrode for copper (II) ion. The Nernst equation was satisfied in the concentration range of from 10^{-1} to 5×10^{-7} M copper (II). The selectivity coefficients of copper (II) ion over other metal ions were determined and many metal ions did not interfere.

[Continuation of ZHONGSHAN DAXUE XUEBAO No 1, Feb 80 pp 76-82]

The effects of Ag^+ , Fe^{3+} , Cl^- , pH and the buffer have also been investigated.

This copper-selective electrode has been used for the determination of copper ion in natural water.

AUTHOR: DENG Yunxiang [6772 0061 4382]
DENG Huannan [6772 3562 0589]

ORG: None

TITLE: "The Thermal Decomposition of Complexes of Zinc Chloride with Nitriles"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 83-88

TEXT OF ENGLISH ABSTRACT: The thermal decomposition of $ZnCl_2(NCCH_3)_2$ and $ZnCl_2(NCC_2H_5)_2$ was studied with thermogravimetric and differential thermal analysis. The result shows that decompositions take place by two steps as follows:



(R: CH_3 or C_2H_5). The energy of activation E^* (kcal/mol) of thermal decompositions is tabulated as the following:

complexes	first step	second step
$ZnCl_2(NCCH_3)_2$	~ 14	~ 18
$ZnCl_2(NCC_2H_5)_2$	~ 8.3	

AUTHOR: ZHANG Hongda [1728 1347 6671]

ORG: None

TITLE: "The Origin and Development of the Cathaysian Flora"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 89-98

TEXT OF ENGLISH ABSTRACT: The Cathaysian flora, or the South China flowering flora, is characterized by many primitive angiosperms, e.g., Magnoliales, Trochodendrales and Hamamelidales, etc. It arose indigenously from the South China platform, and is not a mixture of the Arctic and tropical flora as suggested by certain authors. Early in the Mesozoic era, the Cathaysian flora had appeared on the Sikong-Yunnan ancient landmass. The proangiosperms seem to be the earliest forms of the angiosperms derived from the Pteridosperms, which previously flourished on this ancient land. There are four stages in the developmental process of the Cathaysian flora, i.e., the early stage, the adaptive stage, the dispersed stage and the flourishing stage.

As the Pteridosperms originated in the Devonian, it would seem that the dawn of the angiosperm was not later than the Triassic. The fossil of Sagenopteris of

[Continuation of ZHONGSHAN DAXUE XUEBAO No 1, Feb 80 pp 89-98]

Caytoniales discovered in Shaanxi, the double-pitted pollen in Zhejiang and the tricolpate pollen in Sichuan are supposedly the progenitors of proangiosperms.

The origin of the angiosperm is situated neither from Assam to Fiji nor between Japan and New Zealand. It seems that the Cathaysia, or the South China platform, is the only birthplace where the flowering plants could have originated.

AUTHOR: HUANG Xuelin [7806 1331 2651]

ORG: None

TITLE: "Preliminary Studies on the Constituents of Flavonoids in Hypericum ascyron L."

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 99-104

TEXT OF ENGLISH ABSTRACT: There are some beneficial effects in water preparation of Hypericum ascyron L. for the treatment of bronchitis. For the exploration of the active principles, the present paper deals with the studies of the flavonoid components of this medicinal plant. Ten flavonoids were shown by Two-Dimensional PC of the ethyl acetate extract. Boiling water was added to dissolve the concentrated alcoholic extract and then the water solution was extracted with ethyl acetate. On the basis of spectroscopic analysis, acid hydrolysis and determination of physico-chemical constants, the two compounds, obtained from the ethyl acetate extract through silica gel column chromatography, were identified as Hyperoside and Quercetin. The third one, its crystal form not yet obtained, was identified as chlorogenic acid.

AUTHOR: XIA Pa [1115 3127]

ORG: None

TITLE: "A Problem of Tectonic Characteristics of Ferruginous Ore and a Forecast of the Ore Bodies at Jianshan in Eastern Guangdong, China"

SOURCE: Guangzhou ZHONGSHAN DAXUE XUEBAO [JOURNAL OF ZHONGSHAN UNIVERSITY, NATURAL SCIENCE EDITION] in Chinese No 1, Feb 80 pp 105-114

TEXT OF ENGLISH ABSTRACT: The formation of ferruginous ore is mainly the limestone of middle Carboniferous-Permian systems. The syncline and anticline of south-northern folding zone of preyanshan movements, together with the rise and depression of yanshan granitic zone, have controlled the occurrence of the ore bodies.

We can forecast the distributive areas of the camouflaged ore bodies from tectonic equal distance, the magnetic anomalies and the plunging direction of the granitic body.

9717

CSO: 4009

AUTHOR: HUANG Fuming [7806 4395 2494]
WANG Tingyun [3769 1694 7291]

ORG: Both of the Seismotectonic Brigade, State Seismological Bureau

TITLE: "The Stress Field of a Dislocating Inclined Fault"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2
No 1, Feb 80 pp 1-20

TEXT OF ENGLISH ABSTRACT: In this paper, analytical expressions of the stress field given rise by a rectangular dislocating fault of an arbitrary dip in a semi-infinite elastic medium for the case of unequal Lamé constants are derived. The results of computations for the stress fields on the ground surface of an inclined strike-slip and an inclined dip-slip fault are represented by contour maps. The effects of the Poisson Ratio of the medium, the dip angle, upper and lower boundaries of the faults on the stress field at the surface have been discussed. As an application, the contour maps for shear stress and hydrostatic stress of near fields of the Tonghai (1970), Haicheng (1975) and Tangshan (1976) earthquakes have been calculated and compared with the spatial distributions of

[Continuation of DIZHEN XUEBAO Vol 2 No 1, Feb 80 pp 1-20]

strong aftershocks of these earthquakes. It is found that most of the strong aftershocks are distributed in the regions of tensional stress where the hydrostatic stress is positive.

AUTHOR: CHEN Yuntai [7115 6663 3141]*
GU Haoding [7357 3185 7844]
LU Zaoxun [4151 6644 0534]

ORG: CHEN of the Institute of Geophysics, Chinese Academy of Sciences;
GU and LU both of the Seismological Bureau of Liaoning Province

TITLE: "Variations of Gravity Before and After the Haicheng Earthquake, 1975,
and the Tangshan Earthquake, 1976"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2
No 1, Feb 80 pp 21-31

TEXT OF ENGLISH ABSTRACT: Before and after the Haicheng earthquake of magnitude 7.3 which occurred on 4 February 1975, five repeated gravimeter surveys were carried out, three before and two after the earthquake, along with a northwest-southeast profile of about 250 km in length not far west of the epicenter. The mean-square error of the measurements of the gravity differences between two consecutive points on the profile is less than $40 \mu\text{Gal}$. From June 1972 to May 1973, within a period of about one year, the results of three surveys indicated a clear decrease of gravity values at points on the southeastern portion of the profile, amounting to as much as $352 \mu\text{Gal}$. After the earthquake, the fourth survey, which was carried out in March 1975, revealed that the gravity

[Continuation of DIZHEN XUEBAO Vol 2 No 1, Feb 80 pp 21-31]

values had recovered to the levels at the first survey and continued to increase, as was shown by a fifth survey carried out in July of the same year.

Variations of gravity were also observed before and after the Tangshan earthquake of magnitude 7.8 which occurred on 28 July 1976, but in this case gravity was increasing before the earthquake instead of decreasing. Along an east-west profile of about 270 km in length and not far north of the epicenter, two gravity surveys were made before and two after the earthquake. The results showed that after the main shock, the gravity values of the whole profile, especially at those points closer to Tangshan, tended to return gradually to their values of the first survey before the earthquake.

From these results, there seems to be a close relationship between these gravity variations and the occurrence of earthquakes. Based on results of repeated leveling work done in these regions, the estimated amount of gravity change caused by the change of elevation of the ground surface is far too small to account for the observed value. We therefore speculate that some big earthquakes might be associated with some sort of mass migration under the ground, within the crust or in the upper mantle. This migration would cause a large part of the gravity variation observed. We have made a theoretical analysis of

[Continuation of DIZHEN XUEBAO Vol 2 No 1, Feb 80 pp 21-31]

this effect and attempted to get some estimate of the rate of this mass migration, even though we are not yet clear about the physics of it.

* Present address: Institute of Geophysics, State Seismological Bureau.

AUTHOR: WANG Ren [3769 0088]
HE Guoqi [0149 0948 3823]
YIN Youquan [3009 2589 3123]
CAI Yongen [5591 3057 1869]

ORG: All of the Department of Geology, Beijing University

TITLE: "A Mathematical Simulation for the Pattern of Seismic Transference in North China"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 32-42

TEXT OF ENGLISH ABSTRACT: The present paper describes a certain process of solving a space-time inversion problem. A certain north China region is treated as a grillage of tectonic structures composed of 24 major faults and as an elastic-ideally plastic body in plane strain at a depth of 15 km. It is subjected to uniform stress along the boundaries. By means of the finite element method, the stress field is calculated and the zones of seismic risk are delineated in this region. By reducing the coefficient of friction in a fault from static to kinetic, stress and strain energy may be released there. Five major earthquakes in the last 12 years in this region are simulated in this

manner. By comparing the stress fields before and after the stress release, one obtains the change in strain energy, fault offsets, areas of seismic risk, etc. They are compared to data from actual measurements. If they do not agree well, tectonic framework, parameters of mechanical properties and external stress field are adjusted until they do.

The results show that the present method can reproduce in essence the pattern of seismic transference in the last 12 years and may give some idea about the zones of seismic risk in the future. They also suggest that, after an earthquake, there are narrow sectors in the left-frontal part along the slippage directions that become safer than before, while in the remaining parts the danger of shear fracture increases.

AUTHOR: FENG Deyi [7458 1795 4135]
WANG Zhouyuan [3769 0719 0337]
GU Jinping [7357 3866 1627]
SHENG Guoying [4141 0948 5391]
LI Kelong [2621 0344 7893]

ORG: All of the Seismological Institute of Lanzhou, State Seismological Bureau

TITLE: "Anomalous Variations of Seismic Velocity Ratio Before the Songpan-Pingwu Earthquake (M=7.2) of 1976"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 43-54

TEXT OF ENGLISH ABSTRACT: Using the observational data of travel times of the direct seismic waves recorded at the networks of seismic stations in Sichuan and Gansu Provinces, the preliminary studies of the velocity ratio anomaly before the Songpan-Pingwu earthquake in Sichuan Province of August 1976 were made. The results obtained indicate that before this earthquake the anomalous variation of the velocity ratio was quite obvious, the durations of the V_p/V_s anomaly and its recovery were rather short. The anomalous region of very large

extent was located to the south of the epicentral area of the main shock within Sichuan Province. Certain features of the V_p/V_s anomaly seem to show the connection and also difference between this earthquake and the Songpan-Nanping ($M_s=6.5$) of August 1973. In consideration of the characteristics of the velocity ratio anomaly observed in this region, the related problems of its recovery and the superposition of the anomalous regions have been briefly discussed.

AUTHOR: SHI Huixin [4258 1979 7451]
CAI Zuhuang [5591 4371 3874]
GAO Mingxiu [7559 0682 0208]

ORG: SHI and CAI both of the Hydrochemistry Group, the Seismological Brigade of Beijing; GAO of the Institute of Geology, State Seismological Bureau

TITLE: "Anomalous Migration of Shallow Groundwater and Gases in the Beijing Region and the 1976 Tangshan Earthquake"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 55-64

TEXT OF ENGLISH ABSTRACT: The character and cause of blowing out of gases and emission of sound from dry wells and of water becoming muddy and changing of level in water wells of the Beijing region immediately before the 1976 Tangshan earthquake and its strong aftershocks are investigated. These phenomena, taken as possible precursors of the earthquakes as well as the motivating force, mechanism, geological background and material sources of the anomalous migration, are discussed. In addition, the paper also deals with the relation between these anomalies and the Tangshan earthquake and the significance of the study of groundwater as far as earthquake prediction is concerned.

No gaseous gushing from great depth in considerable quantities appeared so that migration should be regarded only as the migration of shallow groundwater and gases. This is referred to as the consequence of the action on certain hydro-geological structures of an impulse-like extra tectonic stress field on the active faults in the Beijing region under a unified regional stress field. The present authors suppose that further studies of the anomalous migration of groundwater and gases possibly may be fruitful to earthquake prediction work.

AUTHOR: WANG Changling [3769 7022 1545]
YAO Qingchun [1202 1987 2504]
LONG Ming [7893 2494]

ORG: All of the Seismological Institute of Lanzhou

TITLE: "On the Abnormal Characteristics of Radon Contents in the Spring Waters North of the Epicentral Area of the Songpan-Pingwu Earthquake Before Its Occurrence and Their Cause"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 65-73

TEXT OF ENGLISH ABSTRACT: In this paper the abnormal characteristics of radon contents in ground waters before the occurrence of the 1976 earthquake ($M=7.2$) in the Songpan-Pingwu area have been analyzed. It is pointed out that in the epicentral region, Songpan, and to the north of it within a distance of about 360 km, radon contents in spring waters indicate a tendency toward long-term continuous increase superimposed on which are short-term variations lasting about five years. A preliminary explanation of the phenomena is attempted. It is considered that the slow accumulation of tectonic strain in the epicentral area and its surroundings causes the increase of radon contents in spring waters within a broad area and for a long time. Radon in groundwater may be greatly

increased with microfractures in the rock bodies occur. In addition, the supply of spring water may be greatly accelerated by the enhanced vertical differential movement between crustal blocks, causing short-term variation of the radon contents.

AUTHOR: ZHAO Hongsheng [6392 3163 5116]

ORG: Seismological Bureau of Yunnan Province

TITLE: "The Characteristics of Atmospheric Pressure Field Before Strong and Moderate Earthquakes Occurring in Yunnan Province"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 74-79

TEXT OF ENGLISH ABSTRACT: In order to seek the short-range precursory phenomena of earthquakes, time-space changes of the atmospheric pressure field before strong and moderate earthquakes ($M_s \geq 5.0$) occurring during 1960-1974 in Yunnan Province have been investigated. Some correlative regions (or stations) of the atmospheric pressure related to three seismic active belts in Yunnan Province were selected by the statistical method of optimal two-way classification. Finally, the results of a prediction test within the period 1975-1977 indicate that the anomaly of atmospheric pressure may possibly be an indication of short-range precursor of the occurrence of earthquakes.

AUTHOR: ZHU Chengxi [2612 2052 3588]

ORG: Nankai University

TITLE: "The Formulas for Calculating the Magnitudes of the Late Maximum Near and Far Earthquake Events Associated with Great Earthquakes"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 80-89

TEXT OF ENGLISH ABSTRACT: The strain energy of the late maximum near and far earthquake events associated with great earthquakes of magnitude over $M_s=7.3$ occurring on the mainland of China depends on the following factors, namely,
(1) The strain energy of the main shock.
(2) The strain energy of the near maximum shock occurring on the same day as the main shock.
(3) The strain energy of the near maximum shock occurring within 15 days after the main shock.

The formulas give the expressions for actual quantitative calculation.

AUTHOR: DENG Qidong [6772 6386 2639]
ZHANG Yuming [1728 5940 2494]
HUAN Wenlin [3883 2429 2651]
ZHANG Hongsheng [1728 7703 3932]
XU Guilin [6079 2710 2651]
LIU Yiming [0491 0001 7686]
DENG Ruisheng [6772 3843 3932]
LI Qun [2621 5028]
FAN Futian [5400 4395 3944]
YANG Tianxi [2799 1131 6932]

ORG: DENG Qidong, ZHANG Yuming and FAN all of the Geology Institute, State Seismological Bureau; HUAN, LIU and LI all of the Institute of Geophysics, State Seismological Bureau; ZHANG Hongsheng of the Institute of Engineering Mechanics, Chinese Academy of Sciences; XU of the Seismotectonic Brigade, State Seismological Bureau; DENG Ruisheng of the Yunnan Provincial Seismology Bureau; YANG of the Gansu Provincial Seismology Bureau

TITLE: "Principles and Methods of Composing the Seismic Zoning Map of China"

SOURCE: Beijing DIZHEN XUEBAO [ACTA SEISMOLOGICA SINICA] in Chinese Vol 2 No 1, Feb 80 pp 90-110

TEXT OF ENGLISH ABSTRACT: Under the auspices of the State Bureau of Seismology, a seismic zoning map of China (scale 1:3,000,000) was compiled and issued in 1977 for the purpose of providing data for anti-seismic constructional designing and basic seismic intensity of various regions of the country.

The basic seismic intensity of a region is defined as the maximum intensity to be suffered within a given interval of time in the future under the site condition of that region. The map is a sort of prediction of the basic seismic intensity for the next 100 years after 1973.

In this paper the major principles and methods in composing this map are discussed. Of course, as far as the present state of the art of seismic zoning is concerned, the principles and methods used involve many shortcomings and therefore the reliability of the map in predicting seismic intensity is still rather uncertain.

9717

CSO: 4009

END

END OF

FICHE

DATE FILMED

Sept. 24, 1980